DOCUMENT RESUME

ED 052 820 PS 004 791

AUTHOR	Lane, Elizabeth M., Ed.
TITLE	Early Childhood Education Program, ESEA Title I, FY 1970. Project Reports, Volume 5, Book 2, 1970.
INSTITUTION	Dayton Public Schools, Ohio.
SPONS AGENCY	Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
PUB DATE	70
NOTE	159p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$6.58
DESCRIPTORS	Art Appreciation, Health Programs, Kindergarten, *Museums, Parent Participation, *Preschool Curriculum, *Preschool Programs, *Program Descriptions, *Program Evaluation, Psychological Evaluation, Psychomotor Skills, Student Evaluation
IDENTIFIERS	Elementary Secondary Education Act Title I, ESEA Title I

ABSTRACT

This report on the 1969-70 Dayton Early Childhood Education program is divided into three parts: (1) an overview of the ECE program, (2) a description of the program components of ECE, and (3) an evaluation. Section 1 includes an introduction and reports on the growth of the program, how the program contributes to the kindergarten program, the objectives, program organization and staff roles, and the curriculum. Section 2 explains the value of curriculum consultants to insure unified curriculum design, enumerates the special staff services, describes the health and nutrition program, and discusses the tasks of social workers and involvement of parents. Section 3 reports that although tests demonstrate that children do improve cognitive skills from their experience in the ECE program, gains are quickly lost without reinforcement and are not evident in kindergarten or first grade. Tables are included. (Author/AJ)

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EARLY CHILDHOOD EDUCATION PROGRAM

ESEA TITLE I, FY 1970

Resumés in This Volume:

I. EARLY CHILDHOOD EDUCATION PROGRAM

Special Components of ECE

II. Psychological Evaluation

III. Sensorimotor Skills Program

IV. NEW VISIONS, A Children's Museum

Edited by: Elizabeth M. Lane, Coordinator of Educational Research

Division of Research

DEPARTMENT OF PLANNING AND DEVELOPMENT

PS 004791

DAYTON PUBLIC SCHOOLS
348 West First Street
Dayton, Ohio 45402

PROJECT REPORTS

Wayne Carle, Superintendent

Volume 5, Book 2, 1970

EARLY CHILDHOOD EDUCATION
NEW VISIONS

R E S U M É :

EARLY CHILDHOOD EDUCATION PROGRAM FY 1970
ESEA TITLE I

Barbara Schnelle, Coordinator

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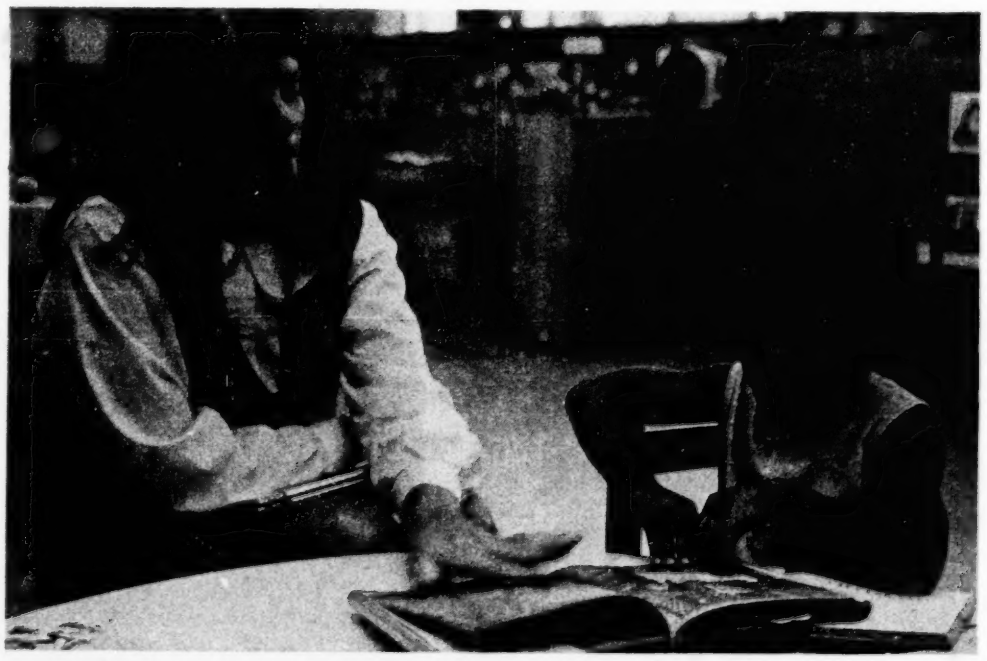
INTRODUCTION

Early Childhood is the term for a special age span in development. It covers the period of high dependency, the time when the child himself feels young, when he feels small, when he feels like a "child." Usually, this period is taken to be from birth to age eight or nine. Specialists have long said that these early years are the most important ones.

The traditional school program in Dayton begins with kindergarten, or age 5, although only about 92% of first year, or age 6, children have attended kindergarten. The Early Childhood Education Program in Dayton, an ESEA Title I program, served ages 3, 4 and 5, during 1969-70.

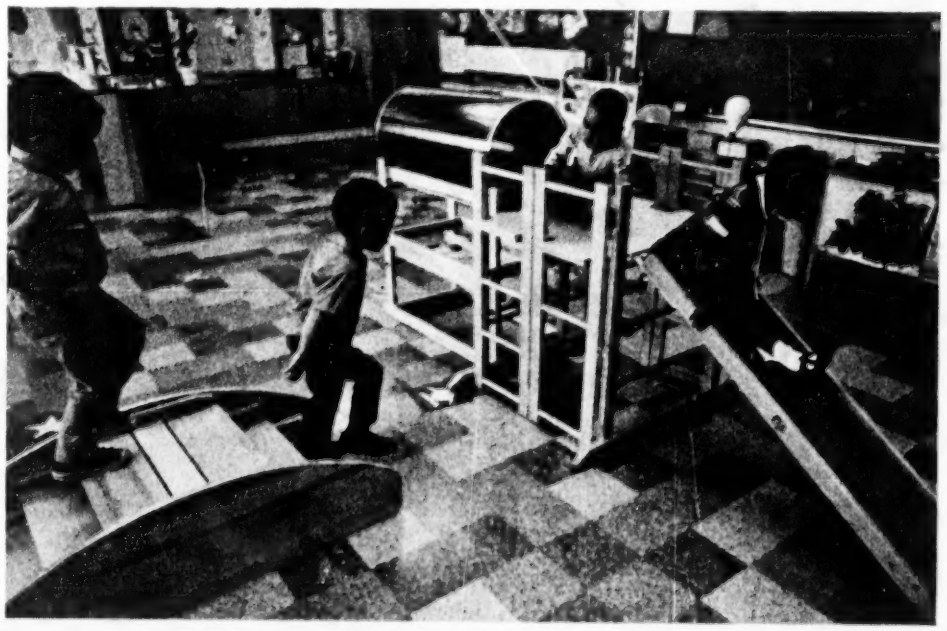
Early Childhood Education is committed to the development of the whole child: intellectual growth, physical well-being, stable emotional development, and sound social development, as these aspects have constant interplay in the child's being. It is not only committed to the development of the whole child, but to the well-being of the family from which the child comes and to the development of strength in the community in which the family has its roots. The program is planned to reach economically and educationally disadvantaged pre-kindergarten children in all aspects of their development, in order that later, they may do better in school.



Success in school is not a matter of what a child knows, his intellectual development alone, but a product of his total growth: what the child knows, how he feels, how he gets along with others, how he looks on himself, and how well his body functions- all of these together determine success. Thus, the enhancement of all aspects of a child's growth becomes the rationale of Early Childhood Education.

Poor children do have intensified needs due to lacks in their home environment, but these have a base in the special needs of all young children who need activity, individual attention, love, acceptance, feelings of self-worth and personalization. In seeking to meet their own needs, young children are lively, exploratory, social, and imaginative.

Through the co-ordinated efforts of the school, the home, and the community, meaningful experiences can be provided which will become the educational and social foundations for these citizens of tomorrow. ECE educators have accepted this commitment with dedication, conviction, and great expectancy for success.



GROWTH OF THE ECE PROGRAM

For the fifth year, three-, four-, and five-year-old children from 22 participating centers of the inner-city areas of Dayton again proved that children can learn through discovery, exploration, and experimentation, each at his own unique, personal level and rate of perception and assimilation.

These have been the basic modes of learning each year of Dayton's Early Childhood Education Program, which began in September 1965 with a pilot program in 4 schools, serving 140 three- and four-year-olds. In March 1966, 12 additional centers were opened, with a total of 620 children.

With the opening of school in September 1966, nearly twice that number, 1,248 three- and four-year-olds were being served in 26 schools.

In 1967-68, the program was expanded to include kindergarten children of 20 schools, providing kindergarten teachers with teacher aides, in-service training, and other components of the program; a total of 2,800 were enrolled during the third year. In 1967-68, also, the program was expanded to serve young children at Shawen Acres Children's Home an hour a day for four days a week.

In September 1968, the program for the same age groups was slightly enlarged to serve an enrollment of 2,900 in 22 centers.

During the 1969-70 school year, the ECE Program was continued in 30 centers (Shawen Acres among them for a half-day session), serving a total of 1,365. In one of the centers, a small experimental group of younger children of 2 1/2 years was included.

Continuity of learning experiences between the ECE groups and those in kindergarten and primary grades has been promoted among staff members and parents, along with the continued effort to meet children's developmental needs at each age.

Project Participants

To what extend did the ECE centers serve the number of children listed in the 1969-70 Project Application of the Parent-Child Educational Foundations Program? In answering this question, a comparison was made of the figures listed in the Project Application with the Average Daily Membership (ADM) figures for pre-kindergarten and kindergarten in the ECE centers.

Eleven of the 19 kindergartens served by ECE exceeded the number listed in the Project Application. In Average Daily Membership, Green School served only 74% of those anticipated for kindergarten. Other kindergartens which fell short were: Whittier (86%), Irving (88%), Wogaman (89%), Emerson (90%), Ruskin (92%), Louise Troy and Weaver (96%). As Westwood and Drexel kindergartens were not in the ECE Program during 1969-70, their kindergarten ADM's were not counted with the others in Table 1 on the following page.

Only 4 centers secured the number of pre-kindergarten participants written in the Project Application: Westwood, Wogaman, McNary, and Jackson Primary. Eight others had 94% or better in Average Daily Membership. Those falling below 94% of the number listed in the Project Application were: the 6 Priority I centers--Irving, Edison, Emerson, MacFarlane, Louise Troy, and Shawen Acres--the group average being 80%; 3 Priority II centers--Washington, Drexel, and Jane Addams--the group average being 99%. The percentage of pre-kindergarten participation secured in each center is given in Table 1.

On the whole, the ECE program served 89% of the number listed in the Project Application for pre-kindergarten and 103% of the number listed for kindergarten. Added effort might be made in succeeding years in those centers lacking the projected participation, or adjustment could be made in the allocation of participants for a few centers. For example, a more realistic pre-k figure for Louise Troy would be 100, instead of 130, and for Westwood 60, instead of 40.

TABLE 1

COMPARISON OF PROJECTED PARTICIPANTS AND AVERAGE DAILY MEMBERSHIP IN EARLY CHILDHOOD EDUCATION CENTERS, 1969-70

CENTERS	Pre-Kindergarten			Kindergarten		
	Projected Partici-pants	Average Daily Membership	Per Cent in Pre-K	Projected Partici-pants	Average Daily Membership	Per Cent in Kinder-garten
	1	2	3 (2 ÷ 1)	4	5	6 (5 ÷ 4)
PRIORITY I						
Irving	80	66.4	83%	84	73.85	88%
Edison	80	68.9	86%	68	88.75	131%
Emerson	80	71.1	89%	87	77.95	90%
MacFarlane	100	83.3	83%	103	127.92	124%
Louise Troy	130	93.4	72%	138	132.70	96%
Shawen Acres	20	7.6	38%	--	--	--
TOTAL PRIORITY I	490	390.7	80%	480	501.17	104%
PRIORITY II						
McGuffey	40	37.5	94%	82	101.93	124%
Weaver	80	72.3	80%	98	94.55	96%
Greene	40	32.6	81%	46	33.85	74%
Huffman	40	37.5	94%	75	74.77	100%
Whittier	40	38.3	96%	87	74.85	86%
Highview	40	38.9	97%	76	85.13	112%
Jackson Primary	80	80.4	100%	152	157.17	103%
Wogaman	40	42.8	107%	105	93.13	89%
Ruskin	40	37.7	94%	99	91.27	92%
Longfellow	40	33.3	83%	104	107.27	103%
TOTAL PRIORITY II	480	451.3	94%	924	913.92	99%
PRIORITY III						
Westwood	40	47.9	120%	0	(143.40)	--
Washington	40	35.4	88%	44	62.31	142%
McNary	40	40.5	100%	68	73.00*	107%
Gardendale	40	39.6	99%	26	27.18	105%
Drexel	40	37.4	94%	0	(75.38)	--
Jane Addams	40	38.0	95%	56	64.60	115%
TOTAL PRIORITY III	240	238.8	99%	194	227.09#	117%
TOTALS FOR CENTERS SERVED BY ECE	1,210	1,080.8	89%	1,598	1,642.18#	117%

* Enrollment for final month of 1969-70; ADM not available.
\# Sum does not include Westwood and Drexel kindergartens not served by ECE.

In the pre-kindergarten centers it was more difficult to secure the projected number of participants. As kindergarten projections were based on the number of kindergarten enrollees at the time the project was written, the ADM figures generally met the projections without too much additional effort.

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Another pertinent question is this: To what extent did the Early Childhood Education Program serve the total number of four- and five-year-old children in the target area?

Because the number of children at any age level in a particular school does not vary greatly from one level to the next, a three-way comparison was made: 1) a Pre-K Index[1] was computed by dividing the pre-kindergarten Average Daily Membership by the kindergarten Average Daily Membership for each ECE center; 2) a Kindergarten Index was found by dividing the kindergarten Average Daily Membership by the first year Average Daily Membership; and 3) a Pre-K Index[2] was determined by dividing the pre-kindergarten Average Daily Membership by the first year Average Daily Membership. The three categories of indexes were then ranked to indicate the relative position of each center in meeting potential need.

The indexes may be considered rough approximations of the extent to which the ECE Program served the number of potential participants in each of the communities surrounding ECE centers.

Column 1 in Table 2 provides an estimation of the percentage of children served in the ECE pre-kindergarten program who might later attend kindergarten; this figure is denoted as Pre-K Index[1].

Column 2 in the table gives an estimate of the proportion of children receiving ECE services in kindergarten to the number who might later be enrolled as first year pupils; this figure is called the Kindergarten Index.

Column 3 provides an estimation of the ratio of the number in pre-kindergarten to the number who may later be in first year classes; this is called the Pre-K Index[2]. Column 3 is also actually a multiple of columns 1 and 2 and represents, perhaps, a more significant relationship than either of the other two. As kindergarten is not compulsory, a child's kindergarten attendance is dependent upon the parents' understanding of the importance of preschool education. As parents become more enlightened about educational

TABLE 2

COMPARISON OF AVERAGE DAILY MEMBERSHIP IN EARLY CHILDHOOD EDUCATION CENTERS WITH ADM AT SUCCEEDING LEVELS, 1969-70

CENTERS	1 Pre-K Index[1] (Pre-K ADM) (Kdg ADM)	Rank	2 Kindergarten Index (Kdg ADM) (1st Yr. ADM)	Rank	3 Pre-K Index[2] (Pre-K ADM) (1st Yr. ADM)	Rank
PRIORITY I						
Irving	89.9	4	103.5	7	93.0	2
Emerson	91.2	3	69.7	18	63.6	7
MacFarlane	65.1	8	112.9	3	73.5	4
Edison	77.6	5	115.9	2	89.9	3
Louise Troy	70.4	7	93.3	10	65.7	6
TOTAL PRIORITY I	76.4		97.3		76.6	
PRIORITY II						
McGuffey	36.8	19	76.9	14	28.3	21
Weaver	76.5	6	77.4	13	59.2	10
Greene	96.3	2	75.1	16	72.3	5
Huffman	50.2	14	56.6	19	28.4	20
Whittier	51.2	12	81.9	12	41.9	15
Highview	45.7	17	93.6	9	42.8	14
Jackson Primary	51.2	12	110.6	5	56.6	11
Wogaman	46.0	16	73.6	17	33.9	17
Ruskin	41.3	18	89.8	11	37.1	16
Longfellow	31.0	21	94.1	8	29.2	19
TOTAL PRIORITY II	49.4		83.2		41.1	
PRIORITY III						
Westwood	33.4	20	...	..	32.6	18
Washington	56.8	10	76.2	15	43.3	13
McNary	55.5	11	107.4	4	59.6	9
Gardendale	145.7	1	131.6	1	191.7	1
Drexel	49.6	15	...	..	43.6	12
Jane Addams	58.8	9	106.1	6	62.4	8
TOTAL PRIORITY III	67.6		96.1		51.5	
ECE CENTERS (21 Pre-K, 19K)	57.1		91.0		62.7	

needs, they become more willing to enroll their young children in the pre-kindergarten program, according to space available. The Pre-K Index[2] suggests, then, the extent to which the Dayton ECE Program met the potential need during the 1969-70 school year, using Average Daily Membership as a base.

TABLE 3

PER CENT OF ATTENDANCE AT EARLY CHILDHOOD EDUCATION CENTERS, SCHOOL YEAR 1969-70

ECE CENTER	Pre-Kindergarten		Kindergarten		TOTAL ECE PROGRAM	
	Per Cent	Rank	Per Cent	Rank	Per Cent	Rank
PRIORITY I						
Irving	70.9	22	89.5	7	80.7	20
Emerson	77.6	18	86.2	12	82.1	14
MacFarlane	79.8	13	94.8	1	88.9	3
Edison	79.1	15	89.6	6	85.0	10
Louise Troy	72.8	21	87.9	9	81.7	17
Shawen Acres	89.4	2	...		...	
TOTAL PRIORITY I	77.2		89.1		83.2	
PRIORITY II						
McGuffey	75.5	19	83.5	17	81.3	18
Weaver	78.7	16	82.9	18	81.1	19
Greene	73.6	20	90.7	3	82.3	13
Huffman	82.1	10	82.0	20	82.0	15
Whittier	85.1	6	91.4	2	89.3	2
Highview	83.0	8	87.4	10	86.0	8
Jackson Primary	79.5	14	85.6	14	83.5	11
Wogaman	78.5	17	89.9	5	86.3	7
Ruskin	82.5	9	88.7	8	87.4	4
Longfellow	83.2	7	85.9	13	85.3	9
TOTAL PRIORITY II	80.0		84.5		83.2	
PRIORITY III						
Westwood	89.6	1	90.3	4	90.1	1
Washington	87.9	5	85.5	15	86.4	6
McNary	88.1	4	*		*	
Gardendale	81.3	12	82.8	19	81.9	16
Drexel	89.3	3	86.3	11	87.3	5
Jane Addams	81.6	11	84.4	16	83.4	12
TOTAL PRIORITY III	86.4		87.1#		86.9#	

- Shawen Acres children attend public schools.

* Per Cent of Attendance not determined because school is ungraded.

Computation excludes McNary, an ungraded school.

Table 4 presents attendance statistics for the program. Mobility of the families of these children may be noted in the 7% who moved within the Title I area and transferred to another center and in the 13% who moved out of the district. Thus, one in 5 ECE children changed his residence during the school year. Because of the withdrawals which amounted to 20% and for the usual reasons of illness, cold weather, and the like, the number of days attended has a wide range, as shown in Table 5.

TABLE 4
ENROLLMENT IN PREKINDERGARTEN PROGRAM (ECE) AND WITHDRAWALS, 1969-70

	Number	Per Cent
TOTAL ECE ENROLLMENT (School Year)	1,365	
Average Daily Membership (ADM)	1,080.8	79.2% (of enrollment)
Average Daily Attendance (ADA)	864.7	80.0% (of ADM)
TRANSFERRALS AND WITHDRAWALS	Number	Per Cent of Enrollment
1) Transferred from one center to another because of change of residence	95	7.0%
2) Withdrawn from program before end of school year for these reasons:		
Moved outside of district	176	12.9%
Mother chose not to send child	38	2.8%
Lack of transportation	21	1.5%
Full daycare required, as when mother is working	15	1.1%
Placed in kindergarten or school	9	0.7%
Family problems	7	0.5%
Lack of adjustment or too young	6	0.4%
Ill health	4	0.3%
TOTAL Withdrawn, Not Re-enrolled	276	20.2%

TABLE 5
RANGE OF NUMBER OF DAYS ATTENDED BY PUPILS IN EARLY CHILDHOOD EDUCATION PROGRAM 1969-70

Number of Days	1 - 34	35 - 68	69 - 102	103 - 135	(Every Day) 136
Children	233	177	316	623	16
% of Enrollment	17%	13%	23%	46%	1%

CONTRIBUTIONS TO KINDERGARTEN PROGRAM

In view of the findings and recommendations of previous ESEA Title I projects in Dayton, the ECE staff was thoroughly convinced of the necessity to "carry through" from pre-K through the kindergarten level, in order to maintain, reinforce, develop and expand understandings, skills, and attitudes achieved in ECE by pre-school children and parents. This belief was reflected in the use of the same objectives and specific behavior characteristics, the same curricular structure, the same organizational framework, and the same type of personnel as in the prekindergarten class.

As kindergarten classes are normally financed in Dayton from the General Fund in all Dayton elementary schools, the 60 classes in the participating schools in the Early Childhood Education Program had teachers paid for by the General Fund. The ECE project, during the 1969-70 school year, paid for a full-time teacher's aide in each kindergarten class.

Through in-service meetings of kindergarten teachers from 21 centers, the children under their guidance were guided toward the attainment of the project objectives and immediate goals through pre-planning by their teachers in a flexible progression of learning activities in language arts, science, health, mathematics, music, art, dramatics, and sensorimotor training. Food for snacks was also provided in the kindergarten program, as in the prekindergarten groups.

In kindergarten, too, the involvement of parents in the on-going daily activities of the project was of equal concentration. Through planned meetings and other activities, parents were helped to understand the general and specific developmental needs of their children, the efforts being made by the school to meet these needs, and the parents' role in reinforcing school learnings.

OBJECTIVES

The Early Childhood Education Program in Dayton has a two-fold purpose: 1) To provide an extensive educational program for developing the potential of very young children who are educationally disadvantaged, and 2) to involve the parents of these children in a program which will enable them to function more effectively in the role of parent and homemaker.

To accomplish this primary purpose, the program has identified the following specific objectives to be achieved:

<u>To Help Children</u>:

1) Develop an understanding of themselves and a wholesome self-concept.
2) Develop a sense of responsibility and self-confidence, and a feeling of security and acceptance.
3) Stimulate concern, understanding, and acceptance of children and adults
4) Live freely and happily in a group.
5) Strengthen inner emotional controls and greater self-discipline.
6) Increase independence in meeting and solving problems.
7) Promote health and physical growth.
8) Develop sensorimotor skills, motor coordination, and control.
9) Observe, discover, experiment, and acquire information.
10) Extend their understanding of and clarify their concepts of the world in which they live.
11) Increase their use of language skills and communication skills.
12) Develop self-expression through experiences in art, music, dance, and literature.
13) Experience success and achievement.
14) Develop a favorable attitude toward learning and school.

<u>To Help Parents</u>:

1) Exhibit wholesome feelings toward themselves and others.
2) Develop skills in helping children achieve a feeling of dignity and worth.
3) Understand the specific role they can play in the physical, mental, social, and emotional growth of their children.
4) Improve the quality of parent-child interaction.
5) Increase the interest of parents in their children's school.
6) Strengthen home-school cooperation.

In all of the components of the Early Childhood Education Program, staff members worked as a team, often with parent assistance, to achieve these objectives. In the home, parents were encouraged to provide the type of supportive experiences which would reinforce the children's learning activities at the center.

ORGANIZATION AND STAFF ROLES

In order to provide an extensive individualized educational program for developing the potential of very young educationally disadvantaged children, enrollment in the pre-kindergarten classes of this ESEA Title I program was limited to 20 children per class. All classes were one-half day in length, most centers providing for two or more classes daily. Classes were in session 4 days each week, with Monday being devoted to in-service education of project staff members, parent conferences, home visitation, and staff planning.

Each pre-kindergarten class was staffed with a full-time head teacher and an assistant teacher. First priority target-area schools, with the highest percentage of economically deprived families, had teacher aides assigned to work in the classrooms with the teachers and assistant teachers. While parents were attending parent meetings and activities, their very young children were cared for by toddler aides.

In addition to teachers and aides, consultants in the curriculum areas of language, art, natural science, and sensorimotor training were often in the classroom, assisting in activities with children and parents.

As liason between the home and the school, social workers also had concern for family and home problems, with proper referrals to school or community agencies. Social workers and nurse worked cooperatively with the staff at Children's Medical Center in health assessment and follow-up.

Under the direction of parent coordinators, parents participated in the program through meetings, observation in the classroom, taking part in activities, going on trips with the children, and volunteer service in the classroom.

In the ECE administrative office, the coordinator of the Early Childhood Education Program had the assistance of secretarial help. The number of staff members in each classification is shown in Table 3.

TABLE 6

CLASSIFICATION OF STAFF IN EARLY CHILDHOOD EDUCATION PROGRAM, 1969-70

Category	Position	Number	
		Full-Time	Part-Time
ADMINISTRATION	Associate Director, Special Assistance		1
	Associate Director, Personnel		1
	Coordinator, Research		1
	Coordinator, Project Development		1
	Stenographer & Clerk-Typist		4
	Account Clerk		3
INSTRUCTIONAL SUPERVISION	Coordinator, ECE Project	1	
	Curriculum Supervisor	1	
	Parent Supervisor	1	
	Social Service Supervisor	1	
	Nutrition Supervisor	1	
	Natural Science Specialist	1	
	Special Services Specialist	2	
	Sensorimotor Training Assistant	3	
	Language Arts Resource Teacher	1	
	Art Resource Teacher		1
	Nurse	1	
	Psychologist		1 1/2
	Administrative Aide & Clerk-Typist	2	
INSTRUCTION	Pre-Kindergarten Teacher	21	
	Pre-Kindergarten Assistant Teacher	22	
	Social Case Worker	10	
	Parent Program Assistant	5	
	Art Docent and Assistant	2	
AIDES	Pre-Kindergarten Teacher Aide	16	
	Kindergarten Teacher Aide	31	
	Parent Program Aide	9	
	Toddler Aide		9
	New Visions Museum Aide	1	

CURRICULUM OF EARLY CHILDHOOD EDUCATION

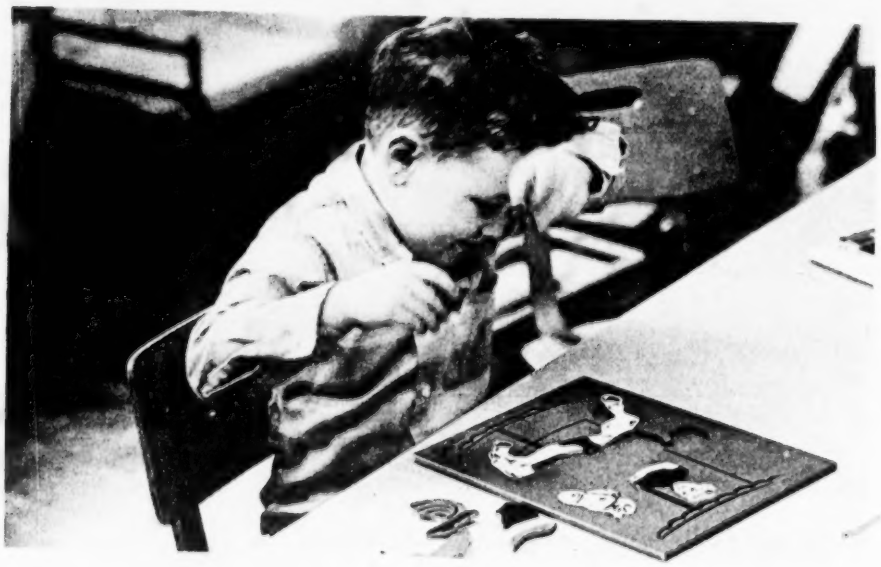
A New Way to Listen

Dayton's prekindergarten program is based primarily on what is now known about how children grow and develop.

During the 1969-70 school year, ECE pre-K teachers attempted to teach in many areas (language, health, socialization, independence, self-expression, information, problem-solving, and critical thinking), which were all interwoven through a planned program designed to satisfy the individual developmental needs of all the children.

The actual program was eclectic in operation, encompassing all of the activities common to the finest offerings in diversified early childhood education programs. (See Appendix for sample daily schedule.)

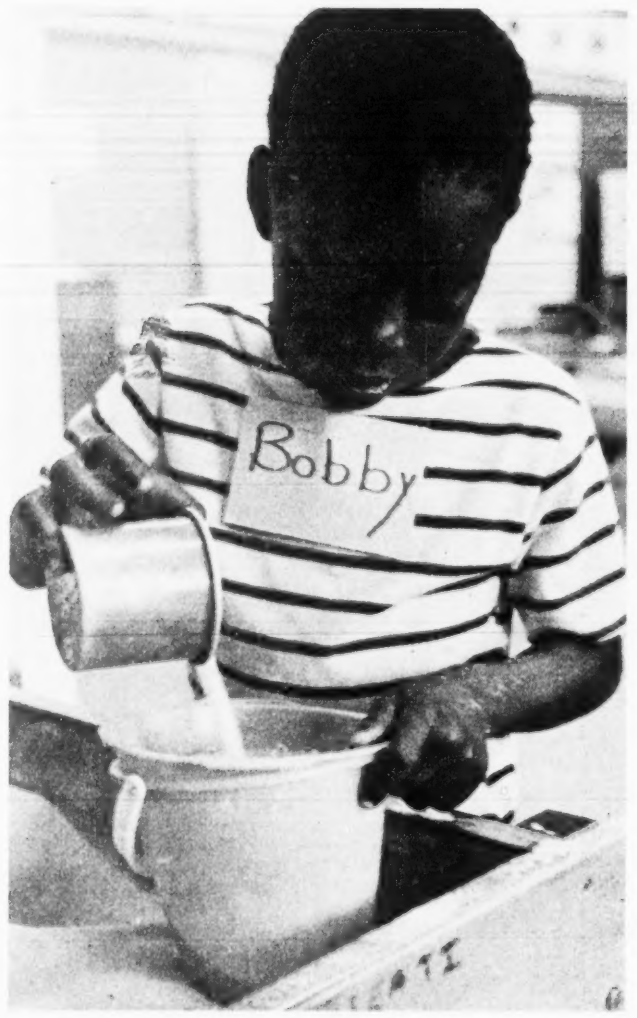
"I Can Do It!"



Selected pictures in this resumé indicate the flexibility of program offerings in meeting the immediate needs and interest of children, while providing established routines that contribute to a child's confidence and security.

Dramatic Play

Perceptual Skills



Self-directed Sand Play

Acquiring
Math
Concepts

Meeting Needs
and
Interests

Language Arts and Communication

By listening to stories, talking about pictures and objects, and dramatizing stories, pre-K children built vocabularies as they learned to express themselves, developing a readiness for learning to read.

The Peabody Language Program was used in every class, while a language consultant visited as Mother Goose.

A Visit From Mother Goose

Peabody Language Program

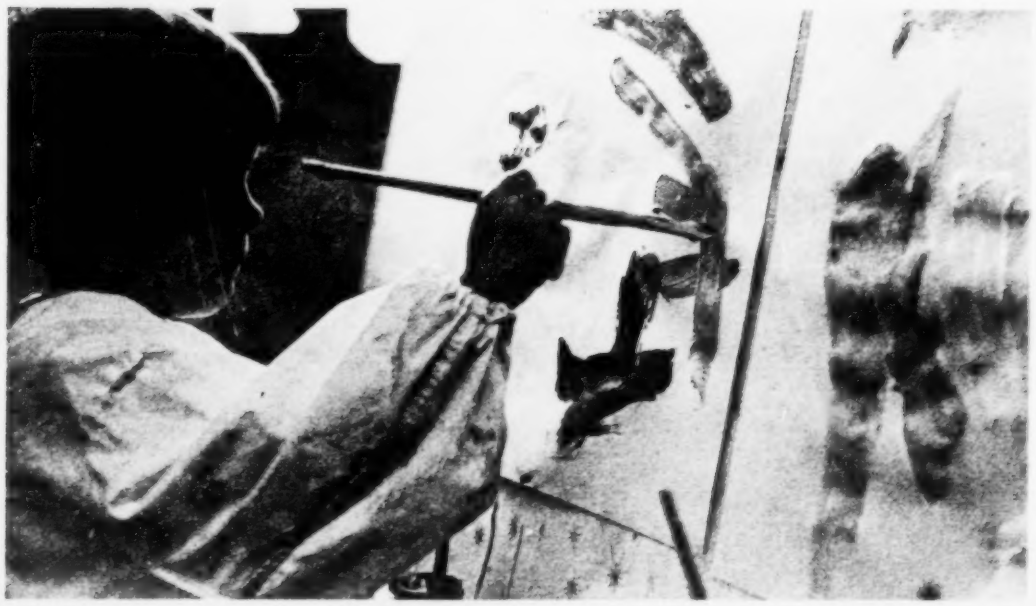
Dramatizing a Story

Movement and Rest

Sensorimotor Training

New Experience for Some

Rest Time



Self-expression
through
art
experiences

Growing As An Individual

Opportunity was offered at each ECE center for every child to have a time for self-chosen activities when he might express himself as an individual by producing something that was his very own.

Through observation, each child made his own discoveries in science and concerning the world about him through walks and planned excursions.

Science concepts
through observation

CURRICULUM CONSULTANTS INSURE UNIFIED CURRICULUM IN ECE

Major responsibility of the three ECE curriculum consultants was to see that project activities in classroom instruction and in the wider experiences of the program coincided with the rationale for early childhood education held for the project and that they led to the attainment of project objectives. (See p. 5)

A pilot program for a limited number of 2 1/2 year-old children was set up in centers, under the guidance of the curriculum consultants. They also had the development of the special program for Shawen Acres Children's Home center, with its wide range of 2 1/2 to 12 years, and with a scope of emotional problems, physical handicaps, and serious illnesses requiring special consideration.

With the introduction of the use of the Peabody Language Development Kit during 1969-70, consultants spent time in observation, evaluation, and making suggestions for its appropriate use.

A major product was the Prekindergarten Guide whose basic structure was outlined by the curriculum consultants. Through planned weekly in-service meetings, the entire ECE project worked on the development of this guide and the Kindergarten Guide, also. The Prekindergarten Guide was to become a working guide for the 1970-71 school year.

During the assessment of kindergarten children to evaluate the impact of the Early Childhood Education program on cognitive development, the curriculum consultants aided in administering the pre- and the post-test to children in seven different schools.

Periodically, the consultants met with teachers to discuss behavior problems and their solutions. Through teacher conferences and weekly in-service meetings, consultants continued their efforts to coordinate the Prekindergarten and Kindergarten programs.

SPECIAL SERVICES STAFF PROVIDES WELL-ROUNDED PROGRAM

To provide a variety of services and resource aids for the prekindergarten teacher, Special Services staff members' time was organized that each one was able to visit each center twice a month, with the exception of the sensorimotor staff who were able to meet a schedule of every one and a half weeks.

The language arts specialist, known as "Mother Goose":

1) Planned cultural experiences and enrichment for children.

2) Provided resource materials.

3) Wore a costume, characterized as "Mother Goose", which helped to enhance storytelling, poetry, and song, and the responses of children in using language art skills.

The natural science specialist:

1) Helped to develop and correlate science as determined by the performance goals.

2) Provided resource aids to teachers in the field of science.

3) Served as a guide for taking children on trips through Jotter Land Laboratory.

4) Worked directly with children in giving them science experiences.

The sensorimotor training specialist and aides:

1) Provided sensorimotor resource aids to teachers.

2) Encouraged teachers to make use of activities in Sensorimotor Training, a manual for prekindergarten teachers, in planning daily program.

3) Engaged in activities with children in addition to those outlined in the manual.

4) Gave demonstrations of activities in manual, upon request of teachers.

5) Arranged for children's demonstrations at parent meetings.

In all activities, the sensorimotor specialist and aides re-emphasized the stimulation of the senses and body coordination by using types of supplemental activities which gave the children experiences in using the senses of hearing, seeing, and touching.

The art resource teacher was not on a regular schedule, but was used as a substitute teacher and, thus, had a daily assignment to centers requiring assistance in having a full daily staff. The art resource teacher:

1) Suggested art activities for the classroom teachers in seasonal decorations.

2) Gave children experiences with the newer tactile materials, with paper cutting and folding, and in woodworking.

The psychologist, who was added to the staff during the summer program,

1) Made video tapes of the children to give them a better perception of themselves.

2) Assisted teachers in planning instruction and classroom management, as they observed the effects of children's behavior on other children.

3) Provided in-service education for teachers on principles of behavior management and self-instructional materials, using the text, Living with Children by Gerald Patterson.

4) Served as a consultant to teachers concerning individual children and groups of children.

ECE NURSE DEVELOPS COMPREHENSIVE HEALTH PROGRAM

During the school year, the ECE nurse visited each preschool classroom several times to talk with children about safety and health-related subjects.

A few days prior to a class trip to Children's Medical Center for health screening, the nurse visited with the class to give the children an explanation of what they could expect to happen during the screening. To alleviate their apprehension, she told a story, showed pictures, and let them handle medical equipment, such as a stethescope, dramatizing the sequence of the screening process.

After play-acting the events that were to happen, the children came to the Medical Center more matter-of-factly, with less apprehension, and even with some anticipation.

Each Tuesday, as a part of the health assessment phase of the Early Childhood Education Program, the ECE nurse administered rubella vaccine at Children's Medical Center and participated in the follow-up the next day.

TABLE 7
FUNCTIONING OF SCHOOL NURSE IN EARLY CHILDHOOD EDUCATION PROGRAM
School Year: 1969-70

Type of Work	Number of Cases
GROWTH MEASUREMENTS:	
Weights taken	282
Follow-up	7
HEALTH EXAMINATIONS	
Visuals	6
Hearing	4
Referrals	*
Follow-up	*
ASSISTANCE WITH HEALTH INSTRUCTION	
Provided material or counsel	64
Assistance in classroom	64
PUPIL CONTACTS:	
Exclusions for illness	9
Readmissions	1
Counseling	27
First Aid	15

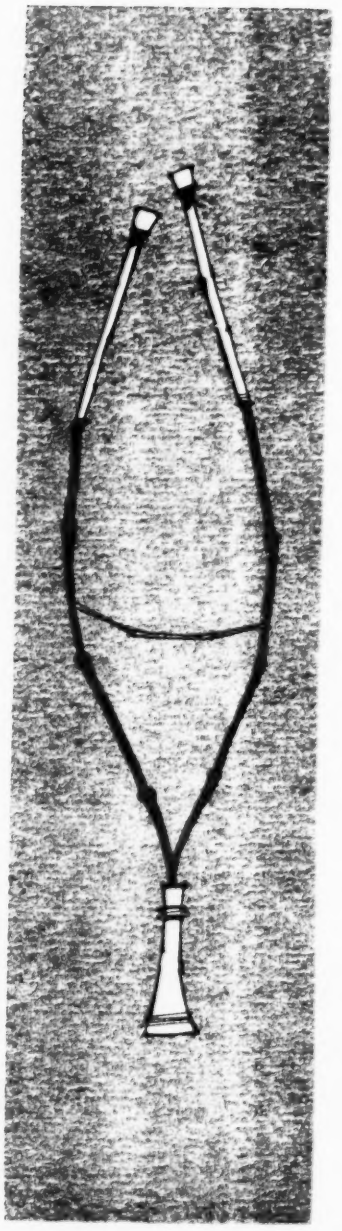
Type of Work	Number of Cases
PARENT CONTACTS:	
School conferences	20
Phone calls	22
Home visits	9
OTHER CONFERENCES, PERSONAL AND BY TELEPHONE:	
Teachers (Daily)	*
Principals	2
Social workers (Daily)	*
Visiting nurse	1
Physicians	60
PROBLEMS OF NUISANCE DISEASES	
Impetigo	21
Pediculosis	0
Conjunctivitis	1
Ringworm	13
Other	0

As indicated in the above table, the school nurse did growth measurements; visual and audio screening, Tine (tubercular) test reading, and urinalysis testing.

Literature on children's health problems was distributed to teachers and parents. The nurse frequently counseled with teachers, social workers who represented the health program in the home, and parents. All follow-up medical treatments were, of course dependent upon the consent of the parents.

Whenever one of the ECE children was hospitalized, the nurse made an effort to visit the child as much as possible.

Health Screening



The 40 page table on health assessment of the ECE preschoolers indicates the extent of services, diagnosis of defects, and/or treatment by center groups.

The children at Shawen Acres Children's Home were not included as the Home provided medical care.

The range of "well children" was from 5% at Huffman to 49% at Whittier, with an average of 21% of the 1,682 children screened at Children's Medical Center. Other schools with especially low percentages of well children were: Ruskin (8%), Westwood (9%), Edison (11%), Gardendale (12%), Grace A. Greene (13%), Wogaman (14%), Washington (16%), and Weaver (19%). Second to Whittier with a high percentage of well children was Drexel (38%). On the whole, about 4 out of every 5 children in the preschool program had one or more health needs which came to light in the health assessment program.

The rubella vaccine was administered to a range of 58% of the preschoolers at Huffman to 99% of those at Ruskin, or to 87% of the total citywide group. Exceptions included children who happened to be absent on the day for the vaccine, children having certain allergies, children undergoing other immunizations, and children receiving the rubella vaccine from their family doctors.

Greatest incidence of health problems was dental caries, found in 51% of the children screened. The most urgent dental needs (#1's in the table) were given priority as far as funding was possible, while, generally, the less urgent needs (#2's, or more minute cavities) were untreated. Some of the children's dental care was paid by Aid to Dependent Children (ADC), while others' treatment was through the ECE project.

TABLE 8

HEALTH ASSESSMENT OF ECE PRESCHOOLERS AT CHILDREN'S MEDICAL CENTER, 1969-1970 School Year

School	Number Screened	Well Children No.	%	Rubella Vaccine No.	%	Physical Defects Found No.	%		Hearing Defects No.	%	
JANE ADDAMS	66	17	26%	59	89%	9	14%	1 T&A surgery completed. 1 cardiac murmur to be re-evaluated in 2 years. 7 other defects treated.	3	5%	1 normal 2 losses
DREXEL	29	11	38%	21	72%	3	10%	1 child is undergoing care. No treatment for 2.	1	3%	1 normal
EDISON	107	12	11%	103	96%	13	12%	3 cardiacs: 2 innocent murmur, no follow-up advised; 1 cardiac catherization under close supervision. 1 severely burned child with secondary infection treated.	5	5%	3 normal 2 losses
EMERSON	90	21	23%	86	96%	12	13%	2 T&A's & myringotomies scheduled. 1 orthopedic splint applied. Other defects treated.	12	13%	10 normal 2 losses
GARDEN-DALE	49	6	12%	41	84%	10	20%	1 cardiac--no follow-up. 9 completed problems.	12	24%	11 normal 1 loss
GRACE A. GREENE	32	4	13%	28	88%	9	28%	1 cardiac to be re-evaluated next year. 1 T&A & myringotomy scheduled.	6	19%	5 normal 1 loss
HIGHVIEW	41	10	24%	37	90%	10	24%	No cardiac or suggicals. 10 were treated.	3	7%	3 normal
HUFFMAN	139	7	5%	80	58%	18	13%	No cardiac or surgicals. 1 orthopedic under physician's care. Others cared for.	9	6%	9 normal
IRVING	65	16	25%	58	89%	15	23%	1 T&A surgery completed. Others treated.	10	15%	8 normal 2 probable losses
JACKSON PRIMARY	159	46	29%	153	96%	21	13%	2 T&A surgery completed. 1 cardiac murmur to be re-evaluated in 1 year. Remainder treated.	6	4%	4 normal 2 losses
LONG-FELLOW	95	15	16%	80	84%	16	17%	1 myringotomy completed. 1 herniorrhapy completed. Others were treated.	5	5%	5 normal

Vision Defects No.	%		Abnormal Hematocrits No.	%		Evaluation of Speech No.	%	Psych. No.	%	Dental Caries No.	%	
3	5%	ECE funded	2	3%	CBC recheck normal	2	3%	1	2%	23	35%	3 ADC's completed; 20 incomplete due to lack of funds
0			0			1	3%	0		16	55%	16 incomplete, no funds.
4	4%	4 ADC's completed	1	1%	CBC normal	0		3	3%	40	37%	25 completed, ADC and funding. 15 incomplete, no funds available for 15 #2 recommendations.
8	9%	4 ADC's 3 funded	2	2%	CBC recheck normal	1	1%	0		44	49%	26 #1 recommendations completed: 7 ADC's 13 funded. 18 #2 incomplete.
2	4%	1 funded 1 private	4	8%	CBC's all normal	0		0		25	51%	15 #1 recommendations incomplete. Also the 10 #2 recommendations.
3	9%	2 ADC's 1 funded	0			0		3	9%	19	59%	9 #1 recommendations: 5 ADC, 4 funded. 10 #2 recommendations incomplete.
2	5%		0			0		0		25	61%	Of 15 #1 recommendations, 2 ADC's completed. 26 #2's incomplete.
6	4%	1 ADC, 5 funded	1	1%	CBC normal	1	1%	0		69	50%	Of 43 #1 recommendations, 7 ADC's completed. 26 #2's incomplete.
8	12%	3 ADC 3 funded	1	2%	CBC normal	2	3% therapy	0		33	51%	14 #1 recommendations: 9 ADC and 5 funded. 19 #2's incomplete.
9	6%	2 ADC 7 funded	2	1%	1 CBC normal 1 anemia	8	5%	0		74	47%	34 #1 recommendations: 10 ADC, 5 funded. 40 #2's incomplete.
2	2%	1 ADC 1 private	0 0			0 0		0 0		49 49	52% 52%	32 #1 recommendations: 4 ADC, 2 funded, 26 incomplete. #2's partially completed.

TABLE 8 (continued)

HEALTH ASSESSMENT OF ECE PRESCHOOLERS AT CHILDREN'S MEDICAL CENTER, 1969-1970 School Year

School	Number Screened	Well Children No.	%	Rubella Vaccine No.	%	Physical Defects Found No.	%		Hearing Defects No.	%	
MACFARLANE	102	29	28%	98	96%	27	26%	2 cardiac murmurs, innocent, no follow-up. 1 possible muscular dystrophy and 1 completed circumcision.	10	10%	10 normal
MCGUFFEY	83	19	23%	61	73%	7	8%	1 cardiac murmur to be re-evaluated in 1 year.	9	11%	8 normal 1 loss
MCNARY	73	23	32%	69	95%	6	8%	1 completed herniorrhaphy. 1 (previously diagnosed) sickle cell disease.	4	5%	4 normal
RUSKIN	84	7	8%	83	99%	4	5%	All minor problems.	14	17%	14 normal
LOUISE TROY	146	43	29%	132	90%	44	30%	1 completed circumcision and herniorrhaphy, 1 T&A and hernia pending. 1 positive sickle cell & 2 cardiac murmurs. Others treated.	19	13%	18 normal 1 loss
WASHINGTON	67	11	16%	53	79%	3	4%	2 orthopedic appointments pending. Others treated.	5	7%	4 normal 1 loss
WEAVER	86	16	19%	56	65%	8	9%	1 muscular dystrophy, 2 circumcisions done, 1 orthopedic treated, 1 congenital heart disease, 2 cardiac murmurs to be re-evaluated.	5	6%	4 normal 1 loss
WESTWOOD	47	4	9%	41	87%	5	11%	1 circumcision scheduled.	3	6%	2 normal 1 loss
WHITTIER	53	26	49%	52	98%	19	36%	1 completed circumcision. 1 orthopedic, 1 severe growth retardation, 1 obesity, 2 cardiac-no therapy.	16	30%	16 normal
WOGAMAN	69	10	14%	65	94%	9	13%	2 cardiac murmurs--no follow-up. 1 pending orthopedic appointment.	7	10%	6 normal 1 loss
TOTAL	1,682	353	21%	1456	87%	268	16%		164	10%	146 normal 18 loss

NOTE: Many minor skin diseases and upper respiratory conditions were treated or given

Vision Defects No.	%	Treated	Abnormal Hematocrits No.	%		Evaluation of Speech No.	%	Psych. No.	%	No.	%	Dental Caries
6	6%	5 ADC 1 private	1	1%	1 anemia	0		1	1%	47	46%	31 #1 recommendations: 4 ADC, 10 funded, others partially completed. 16 #2 recommendations: 8 completed ADC's
2	2%	2 ADC	2	2%	1 CBC normal 1 incomplete	0		5	6%	24	29%	16 #1 recommendations: 2 ADC's completed, others incomplete. 8 #2's incomplete.
4	5%	4 funded	2	3%	1 normal 1 positive	1	1%	5	7%	41	56%	
10	12%	2 ADC 2 funded 6 private	0			3	4%	2	2%	46	55%	31 #1 recommendations: 1 ADC, 4 funded. 15 #2's incomplete.
12	8%	6 ADC 6 funded	2	1%	1 normal 1 positive	0		2	1%	83	57%	47 #1 recommendations: 16 ADC, 15 funded. 36 #2 recommendations partially completed.
5	7%	1 ADC 2 funded	2	3%	1 normal 1 positive	0		4	5%	38	57%	25 #1 recommendations: 9 ADC, others partially. 13 #2's incomplete.
0			4	5%	2 normal 1 incomplete 1 anemia	2	2%	6	7%	47	55%	26 #1 recommendations: 9 ADC, others partially. 21 #2's incomplete.
4	9%	3 funded 1 private	3	6%	1 normal 2 anemias	1	1%	1	1%	26	55%	11 #1 recommendations: 2 ADC, others partially. 21 #2's incomplete.
11	21%	4 ADC 6 funded	1	2%	1 normal	1	2%	1	2%	35	66%	15 #1 recommendations: 7 ADC, 2 funded. 20 #2 recommendations.
0			0			4	6%	6	9%	52	75%	27 #1 recommendations: 5 ADC, 4 funded. 25 #2's incomplete.
101	6%	37 ADC 46 ECE 10 private	30	2%		27	2%	40	2%	856	51%	

prescriptions at screening site.

Dental Caries:
#1: Most urgent needs.
#2: Less urgent needs.

Physical defects were found in about one child in every six that were examined (16%). Whenever possible, a medical follow-up was made for the cases of physical defects which numbered 268.

On the first hearing screening, about 10% hearing defects were noted for the entire group. On re-examination of these children, this percentage was reduced to 1% probable or actual loss, the other 9% found to be with normal hearing on the re-check. Being unfamiliar with what they were expected to do, having wax in the ear, or an infection in the middle ear, or some other cause may have accounted for the first count of hearing defects.

In the vision screening, 101 children, or 6%, were found to have defects. For vision treatment, 46 cases were funded by the ECE project, 37 cases by ADC, and 10 cases were privately taken care of by the family.

A smaller percentage of children were evaluated as having speech problems (2%), psychological difficulties (2%), or abnormal hematocrits (2%). A CBC (complete blood count) re-check reduced the actual incidence of the latter problem, as shown in the table.

Summer 1970

During the summer of 1970, the ECE health component continued, with the nurse examining 40 children's vision and making 2 immediate referrals to physicians. Several others were scheduled to be re-examined in the fall. Three audio checks were made, 2 dental examinations were completed, and 2 other physical problems were investigated.

She also made 20 home visits and about 250 telephone calls that parents might begin the immunization process for the children entering kindergarten in the fall. To encourage continuation of the immunization process, she sent home 12 notes. Arrangements were made for 15 children to have dental care done at Children's Medical Center. Check-ups were done there on previously-screened children. In addition, the ECE nurse attended 5 summer meetings.

Evaluation of ECE Health Program

(In consultation with Supervisor of School Nurses)

The rubella vaccine is required by state law for kindergarten and/or first grade entrance. The fact that the ECE health program immunized 87% of the children in the ECE centers means that this group is almost entirely protected, thus helping to keep down epidemics of measles, a disease which can lead to hearing and cardiac problems, as well as vision loss, in school-age children. The immunization of the children prevents pregnant mothers from getting the disease with its serious effects on the fetus. This immunization program alone is an excellent service to the community.

In the past, attempts have not been made for a complete immunization program, because of lack of medical personnel. If another nurse could be added to the ECE staff to share responsibility for the wide scope of the ECE health program, there could be even more effective follow-up by medical personnel and more contact and continuity in communication on individual children's health problems as they being their regular school experience.

The high incidence of dental caries reflects the lack of mouth care and poor diet of the children who come to the ECE centers. This underscores the importance of health education and sound nutrition principles as these are presented by the ECE nurse and nutritionist to parent groups.

For the individual child, the discovery of a physical defect, such as a cardiac murmur, or a hearing or vision loss, or other special problem, with early steps taken for remediation, can be of utmost and vital importance to the child's future. In this respect, also, the health assessment of the Early Childhood Education Program has made a significant contribution to the welfare of children.

SOCIAL WORKERS PROVIDE LIASON WITH HOMES

Linking the ECE center services to the home, or providing parents with information about types of school and community services that the family might require, was a primary responsibility of the 15 full-time social workers and 1 social worker aide. In promoting the well-being of the family unit, the social workers tried to help parents get the medical, legal, school, and other types of service available in the community, particularly those to meet the needs of children.

Registration and recruitment of children for the ECE program was a specific responsibility. When enrollment declined, social workers recruited additional children.

Early in the year, social workers arranged conferences with teachers and planned to be in the classroom to become on warm and friendly terms with the children. These contacts were helpful in gaining insight into the behavior of individual children, or in later developing a meaningful relationship with the parent. In interviews with parents, the social workers helped parents toward better understanding of child development.

In addition to personal observations of children with special needs, school workers asked for referrals from teachers concerning children whose behavior tended to interfere with their own and others' adjustment to the preschool program. Social workers talked these problems over with the parent in the home, involving partents in the resolution of the problem behavior, as well as understanding of its possible implication.

Aid in Health Assessment and Cognitive Measurement

Social workers screened all children for the medical assessment at the Children's Medical Center. Following the assessment, they participated with the medical staff in planning follow-up care for each child screened who had some problem. The final step was to visit with the parents in the home to interpret the findings of the assessment and to help parents follow through with the recommendations of the care, or treatment, plan for each child.

As a part of the psychological evaluation by the research consultant, the social workers helped to administer pre- and post-testing of kindergarten children.

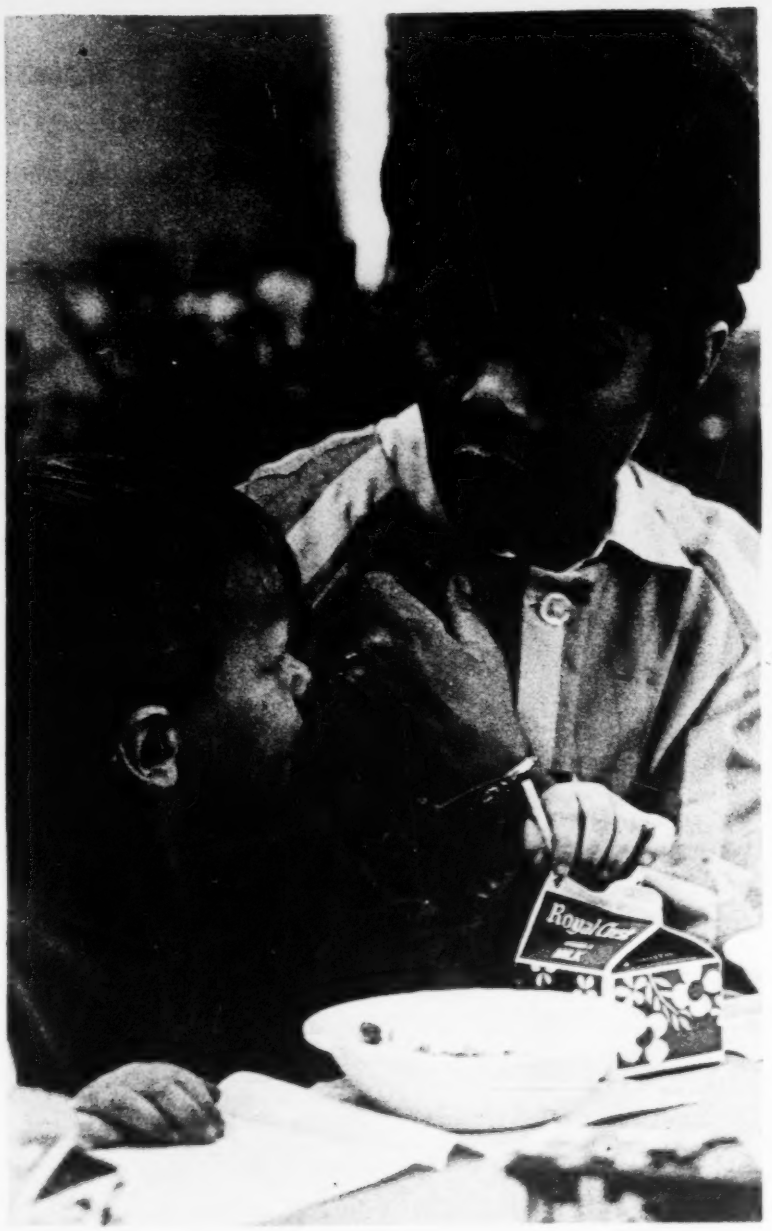
Case Work and Group Skills

In interviews, the ECE social workers employed case work skills as a professional approach. In addition, they began to consider the group work process as a valuable aid in offering services to parents. Some staff members pursued graduate courses in group work as a means of developing group skills and techniques. Additional consultation was given by a professional group worker from Children's Medical Center.

Group work skills were put to the test in the social worker's handling of the ECE Advisory Council in each school. It was the social worker's responsibility to set up the advisory council meeting, to notify participants, and, in many instances, to work out the agenda.

Informal indications, at the close of the school year, were that the advisory councils served their original intent in most schools. They served as an avenue of integrating the Prekindergarten staffs into the mainstream of the schools. Through the Advisory Council, administrators and other service personnel became more involved in the ECE program, bringing about more coordination and effective planning for children.

ECE NUTRITION PROGRAM CONTRIBUTES TO HEALTH OF PRESCHOOLERS



The Nutrition Program was designed to afford a two-fold purpose in the total program of Early Childhood Education:

1) To provide for children a snack that was simple to prepare, yet nourishing and attractive.

2) To encourage parents to give their children nutritious meals.

Rationale for Daily Snack

Having a daily snack was based on the premise that a hungry child cannot function well, either mentally or physically.

Teachers were given a set of menus to use as guides in planning snacks, so that they would include essential nutrients. Since snacks are a part of the child's total daily food intake, they must be chosen for their good food value.

In order to arouse the children's interest in foods and to set the stage for their acceptance of foods provided, teachers were encouraged to let the children help in preparation of the snack. Snack time, thus, became a learning situation posing new experiences for preschool children. In addition, they had the daily practice in using the small muscles of hands and face as they opened their own milk cartons and used straws to drink the milk.

Nutrition Tips for Parents

The nutrition specialist planned lectures on nutrition for parents, using film strips and slides for visual impace. At these meetings, parents were also given pamphlets on the feeding of young children. If parents were interested in dieting, they were helped in planning menus for this purpose. Pre- and post weigh-ins were arranged for the weight-reduction participants, with weight charts to record beginning weights, desired weights, and actual weights after dieting. Parents appeared gratified with the results.

Teachers were asked for names for children who were obese, so that their parents might be encouraged to provide nutritious meals while attempting to help the child reduce to a more normal weight. Several home visits were often made, giving the mother a suggested, planned diet for the child and preparation instructions for certain meals. Progress follow-ups were made. If the nurse discovered any diabetic, a home visit was planned to encourage use of appropriate menus for the diabetic child.

Peanut Butter to Applesauce

The nutrition specialist had the responsibility for ordering and for distribution of foodstuffs, such as cereal, pudding, jello raisins, peanut butter, fresh pears and apples, and canned applesauce. All contacts with milk companies and ice cream suppliers were made by the nutrition specialist, with pre-auditing of all milk bills before submission to the Food Service Department of the school system for final auditing and payment of bills.

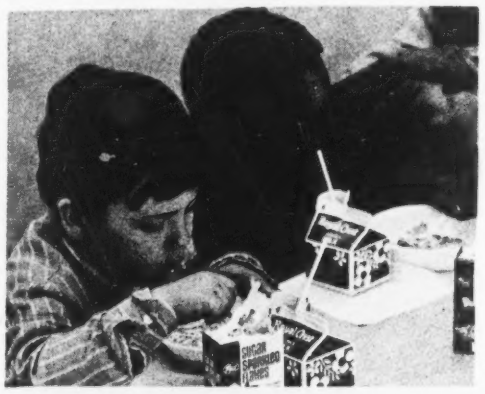
In consultations with teachers, the nutrition specialist prepared suggestions for budgeting and preparation of foods, including variations on preparing such common foods as pudding and jello. Periodic checks were made of teachers' use of grocery accounts, with balances of accounts being sent monthly to teachers to eliminate over-spending and to insure good budgeting procedures.

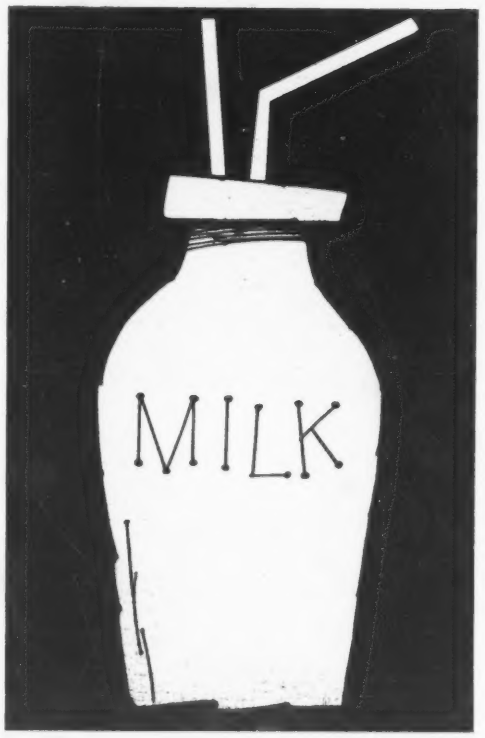
Food-Handling Inspection

At every center, a monthly inspection was made to insure proper sanitation procedures as stipulated by the City Health Department. Storage areas of prepared packaged foodstuffs were inspected, along with the provision for proper refrigeration of perishables and milk. Because of handling food for snacks, every teacher and aide were required to possess valid health cards which were checked periodically by city health inspectors.

Nutrition and Child Development

To a large extent, nutrition influences growth, physical stamina, mental receptivity, general health, and even disposition. Certainly by the ages of three and four, children should learn to be selective in choice of foods, to choose foods in terms of their nutrient value, as well as to satisfy a particular taste. Part of the planning in the Early Childhood Education Project was to give children information about the kinds and quantities of food they should eat. This learning experience was adapted to each individual child, in order to bring about changes most helpful to him.





The happy informal atmosphere of snack time promoted favorable attitudes toward eating a wide variety of good foods and trying new ones, perhaps influencing their home food habits.

In addition to changes in nutrition patterns, children were led to become aware that proper food is necessary for all living things.

Staff teamwork advanced all the principles and objectives of the nutrition program.

PARENTS PARTICIPATE IN EARLY CHILDHOOD EDUCATION

With a carefully planned program of parent participation in all phases of the Dayton Early Childhood Education Program, there is an opportunity to bring about fundamental and lasting changes in the total environment of children.

Guided by a parent program consultant, the ECE parent program functioned during the 1969-70 school year with parents themselves assuming a major role in planning all their program activities.

In every center, at the beginning of the year and monthly thereafter, parents met with the parent program assistant for that center to plan the weekly meetings. Some centers delegated this responsibility to a planning committee, while, in other centers, all parents were involved in the planning. Sometimes teachers and social workers also attended these planning sessions. Informal evaluation of the on-going parent activities was made through discussion. Most of the ideas suggested by the parents themselves could be implemented during the year, so that each center's activities reflected the particular interests and concerns of the parents of children in the pre-school program. The range of activities was wide, from bowling to crafts to information about child development.

Kinds of Parent Participation

Generally, parent participation at the ECE centers was of four types: 1) Information concerning their children's experiences in pre-school: 2) Participation with the children in their activities; 3) Activity meetings relating directly to the children's needs; and 4) Conferences with ECE professional personnel.

The following list indicates something of the range of participation:

1) Information concerning children's experiences in preschool:

   Sensorimotor development.

   Films, with discussion concerning child development, discipline, etc.

   Teachers' explanations of preschool curriculum, how parent can help at home.

2) Participation with children in their activities in the classroom:

   Helping with snacks.

   Reading a story.

   Going on field trips with children and staff.

3) Activity meetings to meet children's needs:

   Parents' workshop to make things for children to use at home.

   Sewing and making clothes for children.

   Mending and altering clothes.

   Learning about proper nutrition and preparing inexpensive, nutritious meals.

4) Conferences with ECE personnel:

   Teachers and aides.

   Nurse or social worker.

At least once a month at each center, the meetings were of the more formal informational type, with attendance of some fathers at the night meetings. At each center, a parent room was provided for parents' own social purposes as well as for meetings. There the parents could use sewing machines and other equipment which might not be found in their homes. Care of babies and young tots was arranged for in another room during the meetings.

City-wide parent meetings, initiated in the 1968-69 year, continued to be well attended, bringing together parents from all centers. At one meeting, the ECE sensorimotor development film was shown, followed by a workshop to manufacture home play items which could contribute to sensorimotor development. At another, a police inspector discussed "Safety in the Home and on the Street", emphasizing ways of self-protection. A very popular meeting was a viewing of a Sesame Street film and discussion of its value for pre-school children. Consultants led small groups in planning ways to use Sesame Street with children at home. The final city-wide meeting was a style show, parent-organized, parents writing script, narrating events, and modeling (or seeing their children model) clothing which they had made.

ECE parents also went on parent group tours of community agencies and places of interest, thus widening their own knowledge of the opportunities and services available in Dayton. The Phil Donahue Show was a popular TV program which most groups visited at least once during the year.

To help plan and implement the parent program, the parent program consultant who had been an experienced social worker was assisted by 6 full-time parent assistants and 8 part-time parent assistants. Several of the latter were welfare recipients selected from the neighborhoods of the centers they served. After working with the more experienced parent assistants for a time, these new recruits were often able to operate their own center before the end of the year.

Parent Advisory Council

A city-wide Parent Advisory Council was formed with a representation of one parent from each school who met with the parent program consultant and the coordinator of Early Childhood Education 5 or 6 times during the year to share information about the center programs and to become aware of mutual problems.

Films That Teach Parents

During the last two years, a 10-minute Super-8 color movie, "Parent Program Activities", was produced by the ECE staff, field-tested in a few ECE centers in the spring of 1970, revised during the summer, and premiered in September for staff orientation. Plans are to use the film with new groups of parents to introduce them to the possibilities of organizing a parent program of high interest and value. Staff members from a suburban school system viewed this film, along with another on pre-school curricular activities, "Three's and Four's in School", and one entitled "Sensorimotor Development", these two films also having been produced by the Dayton Early Childhood Education staff.

Social Workers' Visit

Another aspect of parent contact with the Early Childhood Education Program was the occasional visit of the ECE social worker in the home. The first visit was usually to describe the ECE Program and to arrange for initial enrollment of the most needy children. Other visits might involve the ECE comprehensive health program for each child. Immunization requirements were explained to the parents by the social worker who checked on their necessary completion. The social workers also explained the medical, dental, speech, and hearing examinations provided to ECE groups at the Barney Children's Medical Center and arranged with the parents for their consent for follow-up treatments when necessary.

EARLY CHILDHOOD EDUCATION IN DAYTON--AN EVALUATIVE STATEMENT

Planning a comprehensive educational program for any sector of educationally disadvantaged children must begin with knowledge of the characteristics of the group to be served. Enough literature in this field has been printed for a summary to be abstracted of the handicaps commonly associated with disadvantaged children. A number of these are listed in the first column of Table 9.

That these handicaps often result in slower progress for these children in school is also common knowledge. School factors related to the handicaps of educationally disadvantaged children are given in column 2 of Table 9.

The program inputs of the Dayton Early Childhood Education Program have a definite relationship to the handicaps listed in column 1, for, as far as time and other operational factors permit, the Dayton ECE Program has been designed to match the needs of the children served. The rationale for meeting the child's total needs while in the care of the ECE center is presented on page 1, in the Introduction to this resumé. That there is some ECE program arrangement for every need expressed indicates a high degree of program validity in the offerings of the Dayton preschools, as indicated in column 3 of Table 9.

Another affirmation of the eclectic nature of the Dayton ECE Program can be found in matching the list of stated objectives on page 11 to the listed needs in Table 9. For example the objectives to help children may be classified as follows:

Physical:	Objectives 7 and 8.
Psychological:	Objectives 1, 2, 5, 6, 12, 13, and 14.
Social:	Objectives 3 and 4.
Intellectual:	Objectives 9, 10, and 11.

TABLE 9

SUMMARY OF ECE PROGRAM INPUTS IN TERMS OF RECOGNIZED NEEDS OF EDUCATIONALLY DISADVANTAGED CHILDREN

HANDICAPS OF DISADVANTAGED	EFFECTS ON SCHOOL SUCCESS	ECE SOLUTION
(Children whose early learning experiences have been improverished come to school restricted.)	(These common handicaps often affect school success.)	(Program inputs of the Dayton Early Childhood Education Program have been designed to meet needs of children.)
PHYSICALLY:		
Malnutrition.	Lack of energy for school.	Snack time. Parent education.
Lack of physical stamina.	Lack of energy. Absence from school.	Sensorimotor training program.
Anemia.	Lack of energy.	Rest time.
Untreated dental defects.	Pain that diverts child's attention from learning.	Arrangements by ECE nurse and social workers for health assessment at Children's Medical Center, and for treatment follow-up of large percentage of children needing help.
Untreated visual defects.	Faulty perception that may handicap learning to read, etc.	
PSYCHOLOGICALLY:		
Self-concept poorly developed --little confidence in self and in ability to achieve.	Poor motivation to try or to learn.	Plan for experiencing success in all activities, as in sensorimotor skills, perceptions in NEW VISIONS, self-expression in art, etc.
Weak sense of the future in the family culture.	Little power to move ahead.	Cooperative planning with parents.
	Failure to plan ahead or to have expectation of success.	Group planning with children for "tomorrow", "next week", "when you learn to read", etc.
	Lack of active interest in school. Dropout before high school graduation, etc.	Preschool is a fun place to learn.
SOCIALLY:		
Little ability to socialize with other persons.	Passivity or aggressive behavior becoming the norm, rather than acting in cooperative patterns of response to others.	Group play and activity in sensorimotor skills development.
	Lack of skills in working together on cooperative projects.	Dramatic play to retell a story.
	Lack of feeling of personal responsibility for group social climate in the classroom.	Language arts in communication-- "show and tell" while others listen, etc.
		Opportunity for both self-chosen and group activity, leading toward growth in self-direction and cooperation.

TABLE 9 (continued)

SUMMARY OF ECE PROGRAM INPUTS IN TERMS OF RECOGNIZED NEEDS OF EDUCATIONALLY DISADVANTAGED CHILDREN

HANDICAPS OF DISADVANTAGED INTELLECTUALLY:	EFFECTS ON SCHOOL SUCCESS	ECE SOLUTION
Limited knowledge of cultural patterns that are generally known in middle-class families.	Lower level of language acquisition affecting ease in learning to read and, also, in comprehending what is read.	Enrichment in stories and poems brought to classroom by language consultant ("Mother Goose") and continued by ECE teachers.
Fewer intellectual concepts.	Lack of development of skills of observation and of asking "Why?" with an expectancy of finding answers, thus limiting initiative in individual study.	Observation of natural phenomena encouraged through science and on walks and excursions, with an emphasis on exploration and discovery.
Absence of an adequate language with which to clarify ideas and to communicate with others at school.	Understanding of vocabulary and comprehension of what is read.	Use of Peabody Language Development Kit which has activities suggested to stimulate: 1) Reception-- Auditory, Visual, Tactile. 2) Conceptualization-- Divergent thinking Convergent thinking Associative thinking 3) Expression-- Vocal, Motor
Copying language models from home or peer group, which may be meager, restricted, and incorrect grammatically.	Limits divergence and elaboration in children's thinking and, therefore, inhibits the development of the ability to comprehend.	Certain activities of Peabody Language Development Kit.
Limited ability to label, discriminate, categorize, and generalize, as functions of cognitive performance.	May affect progress not only in reading comprehension, but in math, social studies, and other content areas.	Introduction to math concepts. Puzzle completion by individuals. Visits to NEW VISIONS Museum.

In Part II of this resumé, the extensive Pyschological Evaluation details the analysis of 7 measures employed to assess the language and conceptual skills, visual and auditory abilities, and fine muscular coordination and control, touching on at least three of the 14 objectives, as pointed out in the following list:

Peabody Picture Vocabulary Test:	Concepts (10) and Language Skills (11)
Visual-Motor Integration Test:	Motor coordination (8)
Auditory-Vocal Association Test:	Language Skills (11)
Auditory Decoding Test:	Language Skills (11)
Wepman Auditory Discrimination Test:	Language Skills (11)
Draw-a-Line Test:	Motor coordination and control (8)
Draw-a-Person Test:	" " (8) and Concepts (10)

Since the difference scores between pre- and posttest were used in the analyses of variance with race and sex as factors, a significant difference occurring only for the factor of race in the analysis of one measure, the Auditory-Vocal Test, the conclusions may be drawn that the ECE Program generally served boys and girls equally well as to growth and that, also, in most measures, white and black pupils made similar gains during the program.

From a two-year comparative standpoint, as shown in Figures 1 and 2, on pages 16 and 17 of the Psychological Evaluation, the gains of the 1969-70 ECE Program all were greater on the six measures shown than the gains of the previous year. Since four of these measures tested language skills, it is possible that the input of the Peabody Language Development Kits during the 1969-70 school year may have contributed to some of the gain. When measured in months, the amount of increased gain over the preceding year, varied between pre-test and posttest, from measure to measure: Peabody Picture Vocabulary Test, 1.3 months; Auditory Vocal, 3.9 months; Auditory Decoding, 4.6 months; and Draw-a-Person, 9.5 months. With only one exception on one test, all of the sub-groups made higher gains in 1969-70 than the mean gain for 1968-69. This improvement over the preceding year seems to warrant the conclusion that the efforts being made within the Early Childhood Education Program are bringing about improved results from year to year.

The Psychological Evaluation component reveals that the overall mean gains between pre-test and posttest in the 1969-70 school year vary from 10.6 months on the Auditory Decoding Test to 15.0 months on the Peabody Picture Vocabulary Test. These average gains well exceed 7 months, the length of time between ECE assessments. That gains of such magnitude could occur with educationally disadvantaged children in a half-day prekindergarten program points to considerable success in meeting those objectives of the program measured by the Psychological Evaluation component.

That the gap between the educationally disadvantaged ECE group being measured and norms for the age group was not closed during the program suggests that one or more of the following alternatives for these children might be explored on a pilot program basis, with an aim of further narrowing the existing gap:

1) Continuation of an ECE full-day program during summer months for those children with the greatest need for language development;

2) A full day of kindergarten for the same group;

3) A greater intensity of language development within the ECE program.

In the Kindergarten Evaluation section of the Psychological Evaluation, application of a Chi-Square test does not reveal a significant difference at the .05 level between kindergarten children who had had ECE experience and those without, judging from the results of the Metropolitan Readiness Tests, as is indicated on page 36 of the Psychological Evaluation in this resume. However, when the percentages of Table 23 (page 34 of the Psychological Evaluation) are used as a logically dichotomous variable--that of "likely, or more positive, success in first grade work" or difficulty in first grade, the test for significance of a proportion (61% vs. 48%) provides a z of -5.1485, a figure larger than the ± 1.96 required for significance. By this test, then, the group of kindergarten children without ECE experience (48% likely to succeed) was not up to par when compared to the kindergarteners having ECE experience (61% likely to succeed.)

As shown graphically in Figure 3 of the Kindergarten Evaluation, a trend was established for higher kindergarten means of the sub-tests of the Metropolitan Readiness Test in 1969-70 than in the previous year. Although no t-test was applied to determine whether the differences between the means were statistically of significant difference, most of them may well meet such a test, judging from the visual comparison in Figure 3, as far as the results of the two years are concerned.

In the case of the Listening Test, the 1969-70 kindergarten mean actually exceeds the norm; here there is less likelihood that a significant difference may exist between either of the means of the two years and the norm. That this advantage exists, however, is due chiefly to the higher mean of the ECE group, 9.64, as contrasted to 8.97 for the NoPreK group, the latter mean being nearly identical with the norm of 8.89. Further, the "School" (or treatment) F ratio of 3.04 is higher for the Listening sub-test than for any of the other Metropolitan sub-tests and higher than that for the total Metropolitan score. Although it does not reach the .05 level of significance which requires an F ratio of 3.92, it does exceed the .10 level of significance which requires 2.75. For the Listening Test, a fairly strong F ratio of 3.58 was found for the Race-School Interaction, again not high enough for significance at the .05 level, but meeting the criterion that in 90% of cases, such a result would be due to the interaction of treatment and race and not due to chance. Clearly, ECE must be having some effect on listening, falling just short of firm statistical proof.

In the First Grade Evaluation, found in Section III of the Psychological Evaluation, one might question the use of a "pre-reading test", whether new or not-new, as a sole measure of evaluating a carry-over of ECE training at the end of first grade. Presumably, during first year school experiences, even a high percentage of educationally disadvantaged children would achieve some mastery of the readiness skills "essential to learning to read" that the Clymer-Barrett Prereading Battery purports to measure.

An apparent flaw in the evaluation of the results of the CBPB is that the stanine score norms provided by the manual relate to the first month of the first grade rather than to the last month when the test was administered, as the Directions Manual specifically states that they are "based upon September testing." Therefore, Table 28 on page 43 of the Psychological Evaluation is not a precise use of the manual's stanines as score equivalents, as the following comparison of the fixed percentage value of stanines by definition would also indicate.

TABLE 10

COMPARISON OF STANINE VALUES WITH LISTED RESULTS OF THE CLYMER-BARRETT PREREADING BATTERY ADMINISTERED AT THE END OF THE FIRST GRADE

Stanine	Division of a Normal Population by Percentages for Each Stanine and General Meaning	STANINE CLASSIFICATION OF FIRST GRADERS* AT END OF FIRST GRADE, May 1970		
		Stanine	With ECE in PreK N = 32	Without ECE N = 32
9	4% (Highest)	9	6%	0%
8 7	7% (High) 12% (Above Average)	7-8	53%	50%
6 5 4	17% (Slightly Above Av.) 20% (Average) 17% (Slightly Below Av.)	4-6	38%	50%
3 2	12% (Below Average) 7% (Low)	2-3	3%	0%
1	4% (Lowest)	1	0%	0%

*Percentages from Table 28, page 43, Psychological Evaluation

The design of using this test at the end of the first grade seems ill-advised, for the Directions Manual specifically states:

> "The Clymer-Barrett Prereading Battery is an instrument designed for administration to groups of children after the middle of their kindergarten year or in the early weeks of the first grade."

The CBPB would, of course, be admissible before reading instruction occurs, but it is not designed to evaluate first grade reading achievement.

An attempt was also made in the Sensorimotor Component of ECE to measure carry-over effects of preschool training over a 3-year period. On a locally developed criterion test of sensorimotor skills, the effect of the training was statistically significant between experimental and control groups at the end of the preschool period and, again, at the end of the kindergarten period. In May 1970, two tests (Gray's Oral Reading Test and the Wepman Auditory Discrimination Test) were individually administered to 86 first graders whose sensorimotor skill had been studied in the first two phases of the longitudinal study. Of the three treatment groups of first graders whose test results were studied by ANOVA: 1) 30 children with ECE in a district-wide first year program; 2) 40 children without ECE in a district-wide first year program; and 3) 16 children in a special FOLLOW THROUGH first year program, 13 ECE and 3 without, each of the first two groups differed significantly with the third, but not with each other, on the reading test; no difference between the groups was found on the other test. Here, again, using tests for reading auditory discrimination, a carry-over of positive ECE training effect could not be found at the end of first grade. On the other hand, a definitive judgement cannot be made that effects of preschool sensorimotor training are lacking after two years, but it can be said that they have not been uncovered by the measurement tools used. Nation-wide interest has developed in this field. (See Sensorimotor Skills Component in this resumé.)

On page 31 of this section of the volume, a positive evaluative statement on the Health Services component of the Early Childhood Education Program can be found in connection with the narrative describing the health services component. The scope of health services can be understood by an examination of Table 8.

The story of the NEW VISIONS Museum for children can be evaluated by the unusual number served and by the recognition given the program as being

exemplary in art education and newsworthy in the community. (See Appendix of NEW VISIONS section of this resumé.)

Admittedly, not all areas of the ECE Program have been tapped for evaluation. Nor have all objectives been subjected to measurement with resulting Chi-Squares, ANOVA's, t-tests, or what have you.

In the studies that are made, it is not always feasible to have a traditional research design with a control group's results to analyze alongside those of the experimental.

An attempt should be made, perhaps, to survey parents concerning the value of ECE to their children and of the parent program to themselves. Parents' record of participation is one index of this interest.

It might be possible in the program and worthwhile for self-evaluation by personnel in the program to produce a series of video tapes several times a year, focusing on the children to study them in such areas as language development, group cooperation, etc. Such a program would, of course, require a very talented and discreet person, probably full-time.

Delay in completing the resumé lies in the log-jam of federal and other statistical and evaluation reports encountered in the Division of Research during the months when the resumé itself should receive attention.

The Project Report of Early Childhood Education Program FY 1969 was accepted last year by the ERIC Center at the University of Illinois, making that document available in microfiche, so that its desemination may reach many hundreds of people and may possibly serve as a prototype in the planning and development of other preschool programs.

PSYCHOLOGICAL EVALUATION

A Component of EARLY CHILDHOOD EDUCATION PROGRAM
ESEA Title 1, FY 1970

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The EARLY CHILDHOOD EDUCATION program in the Dayton School District has completed its fifth year of operation. The present evaluation is a continuation of the assessment program model initiated in the 1968-69 school year which attempted not only to measure the effects of the program on children currently enrolled, but began to consider the longer term effects, i.e., upon entrance into and at the completion of kindergarten. This year's evaluation considered the progress of these children in the first grade who were in the previous year's kindergarten sample and who had been in the ECE program in 1967-68. Also assessed were all available children in the previous year's ECE program (1968-69) who are now in kindergarten. Each of these groups, kindergarten and first grade, was matched and compared with a group which had **not** had ECE experience.

It seems of obvious interest and importance to consider not only the immediate impact of the program upon the children enrolled, but to assess whether the program has any enduring effects. Thus, the evaluation includes both cross-sectional and longitudinal approaches. It is planned at this time to include second graders in the 1970-71 evaluation and to add one additional grade each year so long as it seems reasonable and feasible to do so. As much as possible it is planned to use the same tests, methods and variables from year to year to facilitate comparisons, except in those instances where experience reveals opportunities to refine the continuing evaluation program.

The assessment during 1969-70 took advantage of the program's history and the present report will cover three phases:

1. A sample of four-year-olds currently enrolled in ECE.
2. A sample of kindergarten children with and without ECE experience.
3. A sample of first graders with and without ECE experience, previously evaluated in kindergarten.

I. PSYCHOLOGICAL EVALUATION OF FOUR-YEAR-OLDS

During the 1969-70 school year, 1,365 children were enrolled in the Dayton School District ECE program. These children attended classes in 22 different centers. Since it was not feasible to evaluate all children in the program, a modified random sampling procedure was used which included some children from each of the 22 centers and from each of the teachers in the program.

Experimental Design

Two factors, race and sex, were chosen as relevant variables to classify children and to investigate for possible differential effects. Age was used as a third factor during the previous year, but was eliminated because of its apparent irrelevance and for the practical reason that the use of only two factors increased the likelihood of having more subjects available for the final analyses because of the smaller number of categories involved in the experimental design.

A pre- and post-evaluation design was used since the objective was to assess changes occurring during the time period which could logically be attributed to the program. As in the previous year, the lack of a control group was recognized as a limitation in evaluating the results, but circumstances this year did permit an approximation of that condition and additional indirect evidence will be offered. The inability to obtain a control group was due again to the practical limitations imposed by locating similar groups of children not enrolled in the program, having them available for both pre- and post-testing and the cost factor in time, effort and money in locating, evaluating and compensating such children.

Ordinarily, children enrolled in the ECE program who fail to attend the program on a fairly regular basis are terminated after investigation

demonstrates that the absenteeism is not due to circumstances beyond their control. They are to be replaced with other children who may be on a waiting list for certain schools which typically have over-enrollments. Despite this expectation, a number of children with frequent absences continued in the program and 29 were available for both pre- and post-evaluations. Out of a possible 136 days, 30 or more days of class absences was chosen arbitrarily as the cut-off point to be included in this quasi-control group. Children in this group of 29 missed an average of 44.9 days of school with a range of absences from 30 to 78 days.

Each child in this group was matched with another child from the same school and category (sex, race and the combinations) who had missed fewer than 30 days. In order to eliminate possible experimenter bias, a child was chosen from the same school and category whose name was nearest that of the child in the high absence or control group on the original list of those evaluated. In four instances no school match could be found, so a child from a school similar in general socioeconomic status was chosen. Children in the low absence group missed an average of only 13.9 days with a range of 2 to 29 days of absence.

Included in the control group were 9 Negro males, 11 Negro females, 5 white males and 4 white females. These children came from the following schools:

Jane Addams	2	MacFarlane	2
Edison	2	McGuffey	3
Emerson	2	Ruskin	1
Gardendale	1	Louise Troy	1
Highview	2	Weaver	2
Huffman	2	Whittier	2
Irving	3	Wogaman	2
Jackson Primary	2		
		TOTAL	29

Children in the initial pre-evaluation sampling were chosen randomly within the limits of the experimental design which considered sex and race

as possible influential variables. The initial sample consisted of 221 children. Based upon experiences in the previous two years, it was anticipated that an attrition rate of approximately 25-30% could occur due to moves out of the school district (and usually out of the state), particularly among white children. Thus, "over-testing" was done in order to compensate for these anticipated losses. As it developed, the attrition rate approximated 30% once more and was again highest among white female children. Prior to the final analyses the 29 children with more than 30 days absence were also eliminated. In order to simplify the planned analyses of variance, this number was further reduced to 112 children or 28 in each of the four categories. All 22 centers were represented among these 112 children.

Tests Used

Each child was administered seven different tests or criterion tasks. Since one of the major objectives of the ECE program is to develop basic language skills, several of the tasks were directly related to the language area while the others assessed visual-motor development, body awareness, auditory discrimination and self control. Each child was administered in the following order, the Peabody Picture Vocabulary Test; a developmental test of visual-motor integration; two parts of the original Illinois Test of Psycholinguistic Abilities (ITPA): the Auditory Vocal Association Test and the Auditory Decoding Test; the Draw-A-Line-Slowly (DAL) task; an abbreviated form of the Wepman Auditory Discrimination Test; and the Draw-A-Person Test (DAP). These seven tasks were chosen because each measures a somewhat different but related area of functioning associated with the objectives of the program and tasks which would not be directly trained by the program. The Cattell Incomplete Man Test was replaced with the DAL because of its redundancy with the DAP and because the DAL appeared to be

a more promising and sensitive task. Previous experience had also indicated that about 30 minutes of testing time represented the upper limit of tolerance for most children and the tasks chosen met not only the previously mentioned criteria, but also maintained the interests of the children and could be completed comfortably in that time period.

Time of Testing

All children were tested within a two-week period approximately three weeks after classes were formed and had gained some semblance of order and stability and after the children had become adjusted to the daily schedules. Post-testing occurred within a two-week period approximately three weeks before the program ended. (Several "high priority" schools were continued for about six weeks longer but the majority of the children in the program were terminated in early June at about the same time as the general public schools concluded. Children were therefore evaluated in mid-May.) All testing was accomplished by the staff of the Psychological Services, Dayton Board of Education, a total of 17 different persons. All these psychologists were thoroughly acquainted with the tasks and the methods of administration and scoring. Each examiner scored his or her own materials with the exception of the DAP and DAL which were scored by the same person for pre- and post-testing.

Description of Tasks and Scoring

The Peabody Picture Vocabulary Test (PPVT) purports to provide an estimate of a child's verbal intelligence based upon measuring his "hearing vocabulary." The child is not required to verbalize and may simply point to one of four picture choices when the stimulus word is given by the examiner. Scoring was done according to standards given in the manual. The ceiling is

established when the subject misses any six of eight consecutive items. Raw scores were converted into both mental age and IQ scores.

The test of Visual-Motor Integration (VMI) consisted of a series of geometric forms to be copied by the child. The forms were arranged in order of increasing difficulty beginning with a vertical line and progressing through a horizontal line, circle, vertical-horizontal cross, right oblique line, square, left oblique line, oblique cross, triangle, open square and circle and three line cross. Each form was scored either passing or failing, according to standards outlined in a simple manual developed for the purpose. A child's score was simply the number of forms correctly copied.

The Auditory Vocal Association (AVA) test measures the ability to relate spoken words in a meaningful way. It is basically an analogies test in which the child must complete a statement by supplying an analogous word, e.g., "John is a boy; Mary is a _____." Scoring followed the rules indicated in the ITPA manual (1961 edition) which establishes a ceiling following six consecutive item failures. The raw scores were converted into "language age" scores for computational purposes.

The Auditory Decoding Test (ADT) assesses the child's understanding of the spoken word and is essentially a controlled vocabulary test, e.g., "Do you run?" "Do you smoke?" Scoring was based upon the rules contained in the ITPA manual. The ceiling level is reached when four in any eight consecutive items are failed. The raw scores were converted into "language age" scores for computational purposes.

The Draw-A-Line-Slowly (DAL) task, devised by Maccoby, consists of asking the subject to draw a line as slowly as possible. Materials required are an 8 1/2 x 11" piece of plain white paper and a crayon or primary pencil. The examiner gives the child two separate examples, one demonstrating the

concept of fast and the other slow, after which the child draws the line according to the directions. The last two trials are used as test trials with instructions to draw the line as slowly as possible. The time it takes to draw the line between two dots--eight inches apart on the page--is used to compute the criterion scores. A rate measure was used for this task, i.e., length of line divided by time to draw the line. The average of the two trials was then used to obtain a more stable measure.

The Auditory Discrimination Test (ADis.T) is a test designed by Wepman consisting of 40 pairs of words which the examiner reads aloud. Some of the pairs of words are alike and some are different. The task of the child is to respond in some way that they are the same or different. The original list of 40 pairs had previously proved to be too long to maintain children's interests and attention and the list was reduced to 29 pairs by randomly choosing the "X" pairs and selecting all the "Y" pairs. The task was scored according to the number of items answered correctly and raw scores were used in computations.

The Draw-A-Person (DAP) task is one of the oldest and most widely used non-verbal tasks of intelligence which is also related to maturation and body awareness. The Goodenough scoring system outlined in her 1926 book was used and scores were converted to mental age norms as indicated in the same book.

Results

The data for the seven tasks were initially analyzed using analysis of variance (ANOVA) in a 2 x 2 fixed factorial design with race and sex as the two factors, each having two levels. Difference scores between pre- and post-school evaluations were used as cell entries.

The ANOVA's for each of the seven tasks are presented in Tables 1-8. (Both MA's and IQ's were analyzed for the PPVT, making eight analyses for the seven tasks).

TABLE 1. ANALYSIS OF VARIANCE OF PEABODY PICTURE VOCABULARY TEST SCORES (MENTAL AGES)

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Squares	F Ratio F
Race	157.93667	1	157.93667	2.049
Sex	192.93658	1	192.93658	2.504
Race x Sex	10.92383	1	10.92383	...
Within	8323.05080	108	77.06528	...
TOTAL	8684.84770	111		

TABLE 2. ANALYSIS OF VARIANCE OF PEABODY PICTURE VOCABULARY TEST SCORES (IQ's)

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Squares	F Ratio F
Race	7.50890	1	7.50890	...
Sex	777.00598	1	777.00598	2.658
Race x Sex	8.77051	1	8.77051	...
Within	31575.27700	108	292.36353	...
TOTAL	32368.56300	111		

TABLE 3. ANALYSIS OF VARIANCE OF VISUAL-MOTOR INTEGRATION TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Squares	F Ratio F
Race	8.03571	1	8.03571	2.137
Sex	2.89287	1	2.89287	...
Race x Sex	8.03285	1	8.03285	2.136
Within	406.14038	108	3.76056	...
TOTAL	425.10181	111		

TABLE 4. ANALYSIS OF VARIANCE OF AUDITORY-VOCAL ASSOCIATION TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Squares	F Ratio F
Race	544.72296	1	544.72296	5.135 *
Sex	292.50875	1	292.50875	2.757
Race x Sex	42.50293	1	42.50293	...
Within	11457.09400	108	106.08420	...
TOTAL	12336.82800	111		

* $p < .05$

TABLE 5. ANALYSIS OF VARIANCE OF AUDITORY DECODING TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Squares	F Ratio F
Race	162.72319	1	162.72319	...
Sex	102.22319	1	102.22319	...
Race x Sex	35.48340	1	35.48340	...
Within	23585.92600	108	218.38820	...
TOTAL	23886.35500	111		

TABLE 6. ANALYSIS OF VARIANCE OF AUDITORY DISCRIMINATION TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Squares	F Ratio F
Race	0.43750	1	0.43750	...
Sex	5.58036	1	5.58036	...
Race x Sex	67.56807	1	67.56807	1.109
Within	6577.82810	108	60.90581	...
TOTAL	6651.41410	111		

TABLE 7. ANALYSIS OF VARIANCE OF DRAW-A-LINE TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Squares	F Ratio F
Race	0.57429	1	0.57429	...
Sex	0.01041	1	0.01041	...
Race x Sex	0.05414	1	0.05414	...
Within	96.12209	108	0.89002	...
TOTAL	96.76093	111		

TABLE 8. ANALYSIS OF VARIANCE OF DRAW-A-PERSON TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Squares	F Ratio F
Race	200.89281	1	200.89281	...
Sex	116.03574	1	116.03574	...
Race x Sex	270.32935	1	270.32935	...
Within	30210.23400	108	279.72437	...
TOTAL	30797.49200	111		

Since 112 subjects were used in each analysis, F-ratios (1,108 d.f.) of 3.94 and 6.90 are required at the .05 and .01 levels, respectively. The most striking feature of these analyses is the presence of only one significant F-ratio, that associated with the differential effect of race on the Auditory Vocal Association Test. The mean difference scores of 9.9 and 14.3 for Negroes and Whites, respectively, indicate that the white children in this sample made significantly greater gains on this particular task as compared with Negro children ($p < .05$). On none of the other tasks are there significant effects due to any of the main factors nor are there any higher order effects. Thus, with one exception, neither of the two main factors, race or sex, operates in any predictably consistent way alone or in combination to produce significant changes on any of the seven criterion tasks.

Table 9 presents the pre- and post-mean scores and the mean increases for the same 112 children on each of the seven tasks (IQ and MA considered separately for the PPVT). These results indicate that there was rather marked general growth on each of the tasks. It is of special interest and significance that the largest and most consistent gains occurred in language related areas as measured by the PPVT, Auditory Vocal Association Test, Auditory Decoding Test and Auditory Discrimination Test. The very large gain on the DAP will be discussed later in relation to the changes noted on the same tasks in the previous year's evaluation.

Another helpful and revealing way of viewing the gain scores and the pre- and post-program means for these tasks is summarized in Table 10. This table shows these data for the four groups of children classified in the study--Negro males (NM), Negro females (NF), white males (WM), and white females (WF). If the post-program means are considered, an interesting finding is that the group of Negro males achieved the lowest average score on every task, with the exception of the Auditory Discrimination Test, when

compared with the other three groups. On the PPVT MA and IQ, the visual-motor integration test, Auditory Vocal and Auditory Decoding tests, the order of post-program scores from lowest to highest is constant for the four groups, i.e., Negro male, Negro female, white male and white female. Only on the DAL task (arranged from fastest to slowest times, since the best score is the slowest on that task) does the white female group fail to attain the top score. On all other tasks the highest post-program means are achieved by the white female group. The differences between the WF and the NM group are 10.5 months or 11.1 IQ points on the PPVT; 1.3 designs on the VMI; 8.7 months for the Auditory Vocal Association Test; 8.9 months for the Auditory Decoding Test; and 12.2 months for the DAP.

While the ANOVA's applied to the difference scores for each of the tasks revealed no statistically significant differences (except in one instance previously noted), it is obvious that the initial or baseline scores on some of the tasks differed widely for the four subgroups and

TABLE 9
PRE- AND POST-MEAN SCORES AND MEAN CHANGE SCORES FOR CRITERION TASKS

Tasks	Unit Changes	Pre-School Mean	Post-School Mean	Mean Change
Peabody M.A.	Months	40.0	55.0	+ 15.0
Peabody I.Q.	Points	69.0	86.9	+ 17.9
Visual-Motor	Designs	3.4	6.0	+ 2.6
Auditory Vocal	Months	43.4	55.5	+ 12.1
Auditory Decoding	Months	47.9	58.5	+ 10.6
Auditory Discrimination	Words	8.3	17.0	+ 8.7
Draw-A-Line		1.02	.68	- .34
Draw-A-Person	Months	34.0	46.8	+ 12.8

TABLE 10

PRE- AND POST-MEAN SCORES AND MEAN CHANGE SCORES ON CRITERION TASKS FOR FOUR CLASSIFIED GROUPS

Tasks	Unit Changes	Pre-School Mean				Post-School Mean				Mean Change			
		NM	NF	WM	WF	NM	NF	WM	WF	NM	NF	WM	WF
Peabody M.A.	Months	32.2	37.5	38.2	42.9	47.6	49.7	55.4	58.1	15.4	12.2	17.2	15.2
Peabody I.Q.	Points	59.8	69.1	70.5	76.7	80.9	84.4	90.5	92.0	21.1	15.3	20.0	15.3
Visual-Motor	Designs	2.5	3.9	3.4	3.6	5.3	5.8	6.2	6.6	2.8	1.9	2.8	3.0
Auditory Vocal	Months	39.8	46.4	40.1	47.3	50.7	55.3	56.7	59.4	10.9	8.9	16.6	12.1
Auditory Decoding	Months	44.0	47.0	47.4	52.4	55.1	55.3	59.8	64.0	11.1	8.0	12.4	11.6
Auditory Discrimination	Words	7.3	10.0	7.7	9.1	16.7	18.3	15.4	18.8	9.4	8.3	7.7	9.7
Draw-A-Line		1.13	.97	.84	.97	.71	.57	.60	.67	-.42	-.40	-.24	-.30
Draw-A-Person	Months	25.9	41.2	31.5	37.4	39.9	50.1	45.1	52.1	14.0	8.9	13.6	14.7

TABLE 11

COMPARISON OF PRE- AND POST-MEAN SCORES AND MEAN CHANGE SCORES ON CRITERION TASKS FOR 1968-69 AND 1969-70 GROUPS

Tasks	Unit Changes	Pre-School Mean		Post-School Mean		Mean Change	
		1968-69	1969-70	1968-69	1969-70	1968-69	1969-70
Peabody M.A.	Months	40.3	40.0	54.0	55.0	13.7	15.0
Visual-Motor	Designs	3.5	3.4	5.3	6.0	1.8	2.6
Auditory Vocal	Months	44.6	43.4	52.8	55.5	8.2	12.1
Auditory Decoding	Months	46.0	47.9	52.0	58.5	6.0	10.6
Auditory Discrimination	Words	5.5	8.3	10.9	17.0	5.4	8.7
Draw-A-Person	Months	49.1	34.0	52.4	46.8	3.3	12.8

that the essentially similar gains among the four groups resulted in dissimilar post-program average scores, especially between the Negro male and white female groups. However, no further statistical analyses were performed on these data since graphical analyses suggested that analyses of covariance would give similar results. Thus, while these post-program means do not apparently have statistical significance there are nevertheless clear indications that the Negro male group achieves the least in the program as judged by their final scores and that the white female group achieves the most. As Table 10 indicates, the NM group began and finished at lower levels on every task (with the exception of the terminal level on the Auditory Discrimination Test) than any of the other three groups while, with the exception of the VMI, Auditory Discrimination, DAL and DAP on the initial levels (where the differences are generally very slight) and the DAL on the terminal level, the WF group maintains the highest beginning and ending levels. It is of passing interest to note that on three of the four initial tasks where the WF group is exceeded, it is surpassed by the other female group.

Table 11, compares the pre- and post-mean scores and the mean change scores for the 1968-69 evaluation with the present results on the six tasks which were used in both years. With the exception of the Draw-A-Person and Auditory Discrimination Test, the post-mean results of the two years are remarkably similar, although in general children in the current program made larger gains. As was noted earlier, an unusually large gain of 12.8 months was found on the DAP. Reference to Table 11 shows that the mean pre-school score this year was more than 15 months below the previous year and that the large gain still left it almost 6 months below the post-school mean, compared with the earlier group. A review of the pre-test drawings for the group this year showed a much higher number who were unable to comply

Figure 1 Comparison of Group Changes in 3 Measures of EARLY CHILDHOOD EDUCATION Program Evaluation Between Pre-test and Posttest (7 Months) PPVT, DAP, and VMI

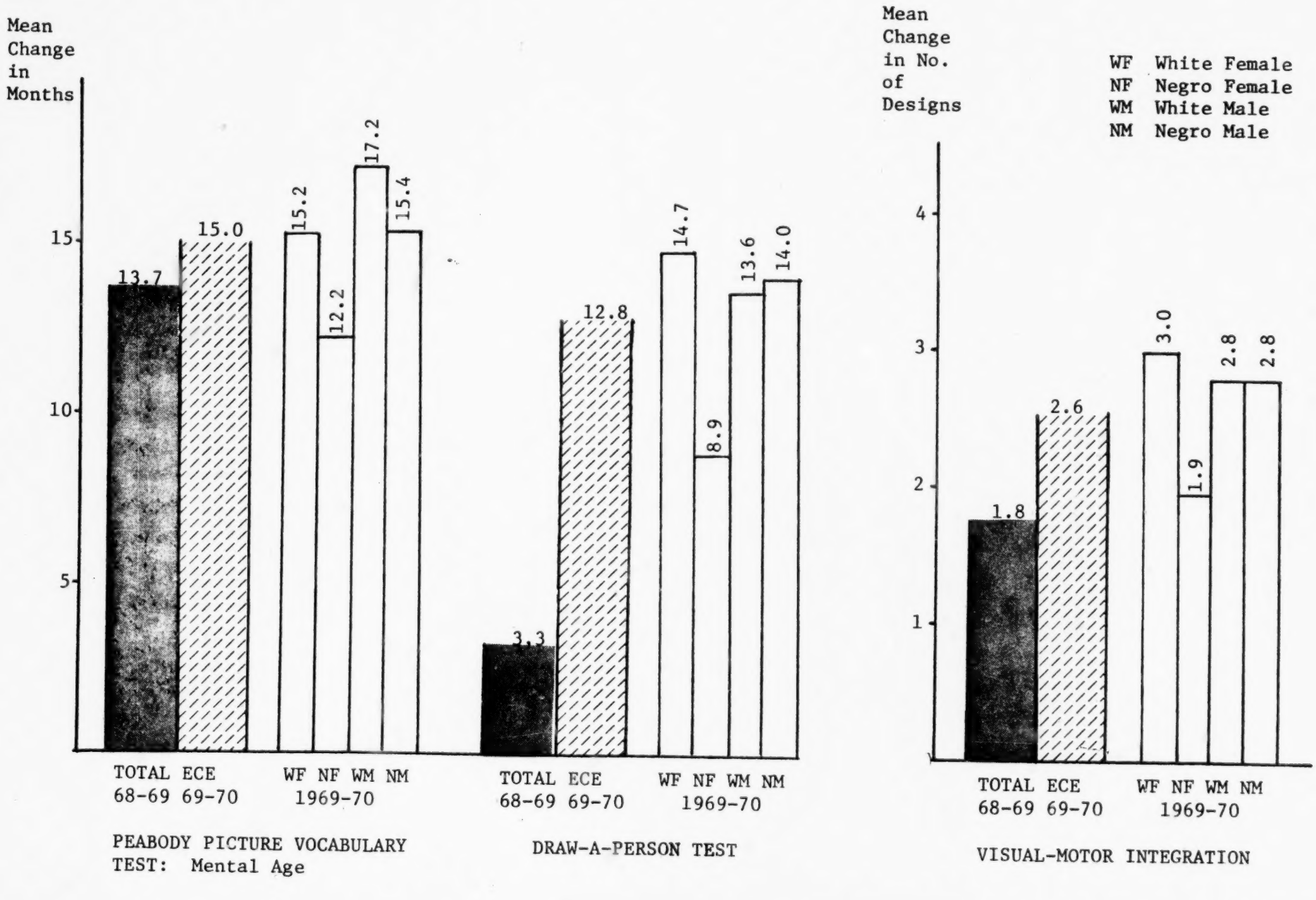
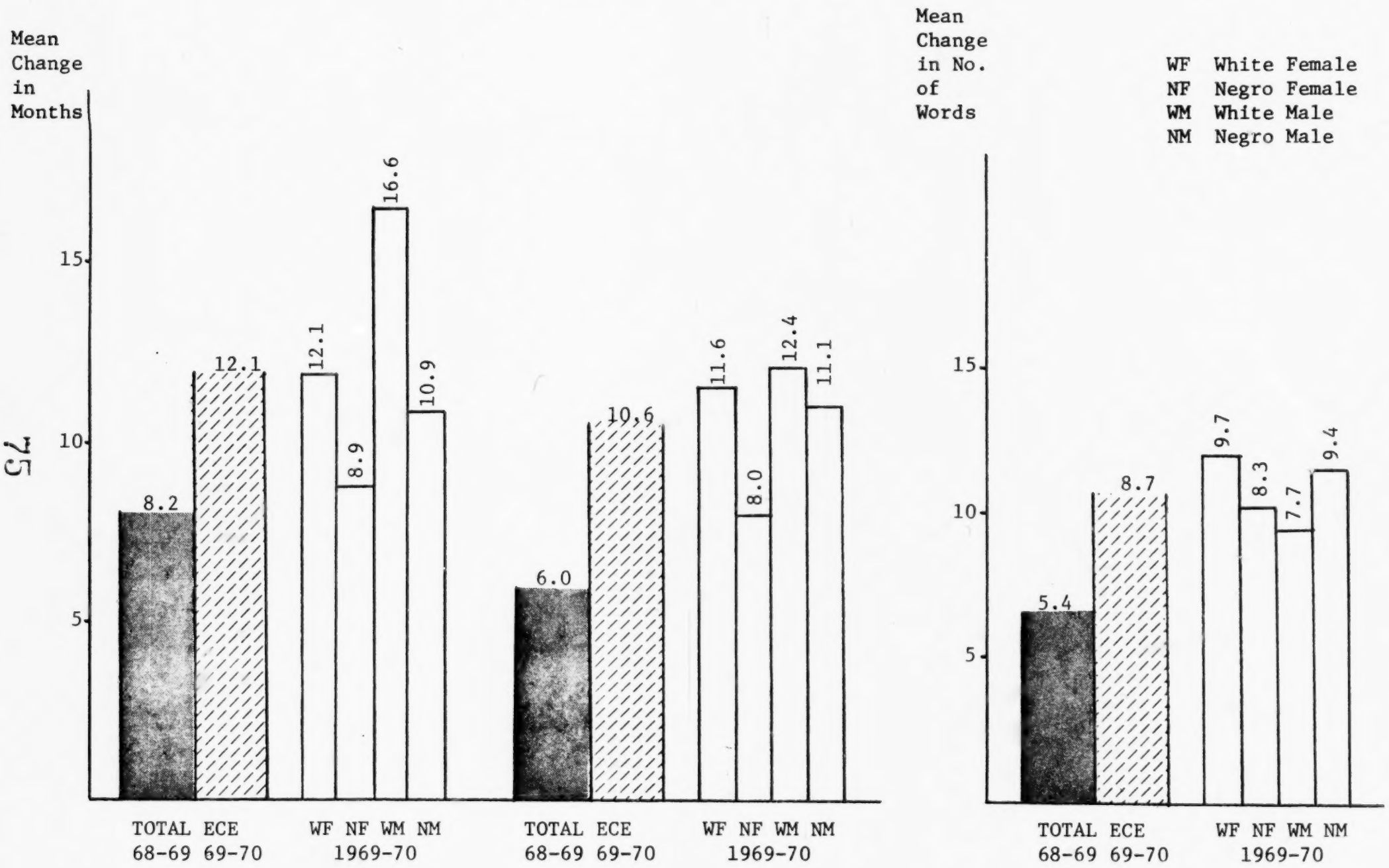


Figure 2 Comparison of Group Changes in 3 Measures of EARLY CHILDHOOD EDUCATION Program Evaluation Between Pre-test and Posttest (7 Months): Auditory Vocal, Decoding, and Discrimination Tests



with the task and thus received zero scores. On post-evaluation, many of these same children were able to produce some scorable drawings and thus showed large gains.

The Auditory Discrimination Test also revealed rather large gains this year and a review of individual performances showed many zero scores on the pre-testing, apparently due to an inability to comprehend the task, rather than an inability to discriminate. The examiners' impressions in administering the task support that idea and suggest caution in explaining improvements or growth on the task. While much of the growth can reasonably be attributed to improved sound discrimination skills, the improvement noted in some children was simply a function of having finally understood the task itself with a consequent rise in performance which cannot be interpreted unequivocally.

These group changes between pre-test and post-test are presented visually in Figures 1 and 2.

Effectiveness of ECE Program

The critical question concerning the present data still revolves around the issue of whether they can logically be used to support the assertion that the ECE program is effective in increasing cognitive achievement levels beyond what would be expected if the children had not been in such a program. The lack of a control group has been admitted as a methodological limitation, but its absence certainly does not invalidate the present evaluation. Several pieces of indirect evidence will be presented which support the effectiveness of the program in improving cognitive skills.

Children in the present sample averaged about 54 months of age upon entry into the program and about 62 months at the end of the program. Referral to Table 9 shows the large increases (decrease on the DAL) in growth which occurred during this time period. An increase of 15.0 months, or 17.9 IQ points, on the Peabody Picture Vocabulary Test seems a very unlikely increase to be attributed

to chance nor can similar increases on the other tasks be dismissed only as expected growth. The study cited by Dunn, Horton and Smith in their manual for the Peabody Language Development Kits (Level #P, 1968) provides one bit of indirect evidence. They cited data collected on four- and five-year olds in day care centers in the Nashville area. The daily programs were said to be typical of the approach used in day care centers in that area and must have much in common with the present ECE program. Control and experimental groups were available, with the experimental group receiving daily lessons from the Level #P of the PLDK. They were compared on the PPVT and other tests following a seven month educational period. The increases in PPVT performance were 12.0 and 7.8 IQ points for the experimental and control groups, respectively. Although the differences were not statistically evaluated, they were offered by the developers of the PLDK as evidence of the kit's efficacy for the development of language skills.

An evaluation of the preschool program of Fresno, California, cited in Foundations for Success in Educating Disadvantaged Children (American Institutes for Research, 1968) also lends support on one criterion instrument for the success of the program. The PPVT was used in 1966-67 and again in 1967-68.

> "The results showed significant gains in vocabulary (the scores also can be translated into IQ in the case of this test) from pretest to posttest. No comparison group was available, but as the gains were considerable, the differences between the means being 12 or more points of IQ, there is little room for doubt about the success of the program." (Underlining not in original.)

The children in this program were from poverty areas and were of Mexican-American, Negro, and white backgrounds.

If 12 IQ points leaves "little room for doubt for the success of the program", then the 17.9 points in the present ECE program should leave little or no doubt about its effect on at least one aspect of cognitive achievement, that of hearing vocabulary development.

Additional related evidence for the effectiveness of the program is provided in Table 12 which compares the group of 29 children irregularly enrolled in the ECE program (30 or more days of absences with an average of 44.9 days missed) with a matched group of children who attended with regularity (less than 30 days absence with an average of 13.9 days missed.) The former group constitutes a quasi-control group and the latter an experimental group. A comparison between these two groups can only provide evidence of relative effectiveness since both groups were in the program and were all exposed in varying degrees to it, depending upon attendance.

It is noteworthy that on every task the experimental group attained a larger mean difference score than the control group. Although only the PPVT IQ difference proved to be satistically significant ($t=3.25$, $p < .01$), the results are nevertheless very striking when it is considered that the two groups do not include only the most extreme attendance cases.

TABLE 12
COMPARISON BETWEEN LOW AND HIGH ABSENCE GROUPS ON CRITERION TASKS

Tasks	Low Absence (Exp.)		High Absence (Control)		
	Mean	S.D.	Mean	S.D.	"t"
Peabody M.A.	16.07	5.93	10.86	8.69	1.253
Peabody I.Q.	23.28	11.79	4.62	15.24	3.252**
Visual-Motor	2.52	2.13	1.79	1.68	0.939
Auditory Vocal	15.03	9.72	8.79	10.04	1.489
Auditory Decoding	13.41	17.62	7.97	14.19	1.061
Auditory Discrimination	6.45	7.97	6.38	8.72	0.025
Draw-A-Line	-0.40	0.70	-0.48	0.98	0.301
Draw-A-Person	11.79	13.89	9.41	16.09	0.488

$p < .01$** ("t")= 2.771, $p < .01$, 27 d.f.
2.052, $p < .05$

A visual comparison of the most extreme cases in both groups showed a much sharper divergence of scores than the 29 pairs on which the present data are based which had many children from both groups who fell towards the middle of the arbitrary 30 day cut-off point. The mean differences of 5.2 months and 18.6 IQ points on the PPVT; 0.72 designs on the VMI; 6.2 months on AVT; 5.4 months on the ADT; and 2.4 months on the DAP have to be regarded as very meaningful and practically significant differences when the composition of the two groups is considered and the arbitrary nature of the cut-off point recalled.

Once again, despite the very significant gains recorded during the seven-month educational period, which attest to the overall impact of the program on cognitive growth, the children in the present sample are on the average still below grade level on the various tasks. These children, whose mean age is now about 62 months, average 55 months (approximately 87 IQ) on the PPVT, 56 months on the AVT, 59 months on the ADT, 47 months on the DAP and about 51 to 54 months on the VMI. The significance of this material will be commented upon later in the summary section.

II. KINDERGARTEN EVALUATION

Following the assessment plan which was initiated last year, comparative evaluation of children now in kindergarten, with and without ECE experience, was again performed. Despite demonstrated gains in the previous years and in the present program, it is important to know whether such gains continue or whether they diminish with time and/or with "regular" classroom activities. Children from sixteen different schools who had been in the 1968-69 ECE program were used in the evaluation. Schools providing kindergarten children were:

Edison	Huffman	MacFarlane	Washington
Emerson	Irving	McGuffey	Westwood
Greene	Jackson Primary	McNary	Whittier
Gardendale	Longfellow	Louise Troy	Wogaman

Control, or non-ECE enrollees, were obtained from the same schools.

Experimental Design

Once again the factors of major interest for this evaluation were sex, race and, of course, whether or not the child had previously been enrolled in the ECE program. Since it is hoped to plot the individual progress of children over a longer time period, all available children from the previous year's ECE sample were used in the kindergarten sample. "Over-testing" was again utilized to offset expected losses between pre- and post-testing, particularly among white children. It was once more decided to evaluate the test results by analysis of variance using a three-factor, two-level, fixed factor design.

None of the children in the no-school group had been in any pre-school program so far as could be verified by record, or by teacher or parents' reports. It was again decided to evaluate children as soon as possible following

their entrance into kindergarten and as late as possible during their final month in kindergarten. The initial evaluation would provide a comparison for the effects of pre-kindergarten training as well as the possible differential effects of race and sex and the combinations of these factors. Similar assessments could result from post-testing, plus permitting an evaluation of the effects of kindergarten experiences.

Considerations in Selecting Tests

Considerations which entered into the selection of the tests were:

1. Group as opposed to individual administration because of personnel limitations.

2. Length of testing time available, both because of classroom restrictions and ability to maintain children's attention and interests.

3. If possible, to utilize the same tests from the previous year to facilitate comparisons.

Personnel limitations made it impractical to administer more than a single test for each evaluation and one which could be managed by persons with only a limited amount of training. The tests were administered by ECE teacher consultants and social workers following a period of training and explanation by a psychologist. Actually most of the persons administering the tests this year had administered the same tests the previous year and had become very familiar with the techniques and problems of managing group administrations with five-year-olds. Children were tested in small groups, usually of 5 or 6, within a two week period during October, 1969, and within a similar time period at the end of May, 1970. Approximately 7 months intervened between the two test administrations.

Description of Tests and Scoring

The Kuhlmann-Anderson Test, 7th Edition, Booklet K, Revised 1965, was again used for the pre-kindergarten evaluation. It is generally viewed as an "intelligence test" and provides an IQ which is defined as "an index of the degree of a pupil's mental ability, or academic potential, in comparison with a representative sampling of pupils of the same chronological age." (Kuhlmann-Anderson Manual, p. 26) The test consists of eight parts, each of which provides a score, but IQ's and other standard measurements are provided only for the total score. The tests involve picture completion, locating the incorrect part in a picture, classifying objects which belong together, identifying objects which fit various orally described specifications, completing designs, matching figures, counting and following directions.

The Metropolitan Readiness Tests, Form A, 1965, were used for the terminal evaluation. They measure the extent to which school beginners have developed in the several skills and abilities that contribute to readiness for first grade instruction. Six tests are included in the MRT:

1. Word Meaning, a 16-item picture vocabulary test.
2. Listening, a 16-item test of the ability to comprehend phrases and sentences instead of individual words.
3. Matching, a 14-item test of visual perception involving the recognition of similarities.
4. Alphabet, a 16-item test of the ability to recognize lowercase letters of the alphabet.
5. Numbers, a 26-item test of number knowledge.
6. Copying, a 14-item test which measures a combination of visual perception and motor control.

Conversion scores are provided on each of the six sub-tests and the total, but percentile ranks and stanines are provided only for the total score.

Results

The data for both the initial and post-testing were analyzed using ANOVA. IQ's were used as cell entries for the Kuhlmann-Anderson, while the unconverted scores were used for the Metropolitan. There were 160 children used in the Kuhlmann-Anderson analysis and 128 of that number for the Metropolitan Tests.

The ANOVA for the Kuhlmann-Anderson is presented in Table 13. Reference to it reveals only one significant F-ratio, associated with the main effect of race. The F of 29.15 is highly significant (1, 152 d.f., $p < .001$). The means associated with this main treatment effect are 85.7 and 94.2 for Negroes and whites, respectively, indicating that the white children perform significantly and consistently better than Negro children on this particular test. The present findings are discrepant with the results from the previous evaluation which found a significant difference for the school factor, with the pre-kindergarten group's exceeding the no pre-kindergarten group by 5.9 IQ points, but no other effects.

The failure to find any effects due to pre-kindergarten (ECE) training raises some critical and far-reaching questions which cannot be completely or unequivocally answered at the present time. These same children showed definite general improvements as measured by a series of tasks the previous year, and it would be expected that these improvements would carry over into kindergarten, especially after an interim of only 3 summer months. It could be argued that the Kuhlmann-Anderson does not measure validly what is taught in the ECE program, but the previous evaluation would not easily permit such an assertion. It is also possible that the presumably matched control children possessed characteristics (including possibly some children who had unknowingly been in Head Start or other public or private pre-kindergarten programs) which placed them on a par with the ECE

TABLE 13
ANALYSIS OF VARIANCE OF KUHLMANN-ANDERSON TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Race	2873.02490	1	2873.02490	29.150***
Sex	36.10005	1	36.10005	....
School	4.22502	1	4.22502	....
Race x Sex	0.10147	1	0.10147	....
Race x School	13.22647	1	13.22647	....
Sex x School	96.10086	1	96.10086	....
Race x Sex x School	0.07349	1	0.07349	....
Within	14980.66400	152	98.55699	
TOTAL	18003.51600	159		

*** $p < .001$

TABLE 14
ANALYSIS OF VARIANCE OF TOTAL METROPOLITAN READINESS TEST SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Race	1069.53125	1	1069.53125	5.778*
Sex	1128.12500	1	1128.12500	6.094*
School	496.12500	1	496.12500	2.681
Race x Sex	81.28125	1	81.28125	....
Race x School	101.53125	1	101.53125	....
Sex x School	480.5000	1	480.5000	2.596
Race x Sex x School	157.42578	1	157.42578	....
Within	22212.25000	120	185.10208	
TOTAL	25726.77000	127		

* $p < .05$

TABLE 15
ANALYSIS OF VARIANCE OF METROPOLITAN WORD MEANING SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Race	34.03125	1	34.03125	4.772*
Sex	7.03125	1	7.03125	....
School	3.78125	1	3.78125	....
Race x Sex	0.50000	1	0.50000	....
Race x School	0.50000	1	0.50000	....
Sex x School	55.12500	1	55.12500	7.730**
Race x Sex x School	0.78125	1	0.78125	....
Within	855.75000	120	7.13125	
TOTAL	957.50000	127		

** $p < .01$ * $p < .05$

TABLE 16
ANALYSIS OF VARIANCE OF METROPOLITAN LISTENING SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Race	9.57031	1	9.57031	1.686
Sex	6.57031	1	6.57031	1.157
School	17.25781	1	17.25781	3.040
Race x Sex	1.75781	1	1.75781	....
Race x School	20.32031	1	20.32031	3.580
Sex x School	1.32031	1	1.32031	....
Race x Sex x School	3.43945	1	3.43945	....
Within	681.18750	120	5.67656	
TOTAL	741.42383	127		

TABLE 17
ANALYSIS OF VARIANCE OF METROPOLITAN MATCHING SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Race	36.12500	1	36.12500	3.398
Sex	21.12500	1	21.12500	1.986
School	10.12500	1	10.12500	....
Race x Sex	38.28125	1	38.28125	3.600
Race x School	11.28125	1	11.28125	1.061
Sex x School	1.53125	1	1.53125	....
Race x Sex x School	28.12500	1	28.12500	2.645
Within	1276.12500	120	10.63437	
TOTAL	1422.71880	127		

TABLE 18
ANALYSIS OF VARIANCE OF METROPOLITAN ALPHABET SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Race	20.32031	1	20.32031	1.212
Sex	59.13281	1	59.13281	3.526
School	21.94531	1	21.94531	1.309
Race x Sex	0.63281	1	0.63281	....
Race x School	8.50781	1	8.50781	....
Sex x School	14.44531	1	14.44531	....
Race x Sex x School	1.31372	1	1.31372	....
Within	2012.43750	120	16.77031	
TOTAL	2138.73560	127		

TABLE 19
ANALYSIS OF VARIANCE OF METROPOLITAN NUMBERS SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Race	86.13281	1	86.13281	6.162*
Sex	41.63281	1	41.63281	2.978
School	7.50781	1	7.50781	....
Race x Sex	1.32031	1	1.32031	....
Race x School	6.57031	1	6.57031	....
Sex x School	86.13281	1	86.13281	6.162*
Race x Sex x School	2.81372	1	2.81372	....
Within	1677.43750	120	2.81372	
TOTAL	1909.54810	127		

* $p < .05$

TABLE 20
ANALYSIS OF VARIANCE OF METROPOLITAN COPYING SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Race	17.25781	1	17.25781	1.811
Sex	96.25781	1	96.25781	10.103**
School	15.82031	1	15.82031	1.660
Race x Sex	0.94531	1	0.94531	....
Race x School	0.19531	1	0.19531	....
Sex x School	8.50781	1	8.50781	....
Race x Sex x School	3.43848	1	3.43848	....
Within	1143.31250	120	9.52760	
TOTAL	1285.73540	127		

** $p < .01$

children upon kindergarten entrance. Another possibility is that, for this particular group of children, even an interim of 3 months without the daily stimulation of a program such as ECE could produce some apparent regression. Since ECE children other than those used in the original sample last year were included in the present kindergarten evaluation, it is also possible that chance alone entered enough children who did not profit from the program that they offset the gainers. However, the previous year's results would cast serious doubts on such an assumption. In any event, the present results do not support the principle that those children who have received ECE experiences necessarily enter kindergarten functioning at a higher level of "intelligence" than children who have not had such experiences, although the reasons for the disparity between the results this year as compared with last are obscure.

It is of interest to note that the mean IQ for the total group of 160 children was 90.0 which is almost identical with the mean IQ of 89.1 last year. This IQ score is equivalent to the 25th percentile or within the fourth stanine. Mean IQ's for the pre-kindergarten and for no pre-kindergarten groups are almost identical, 90.1 and 90.0, respectively.

Metropolitan Readiness Tests

The ANOVA's for the Metropolitan Tests are presented in Tables 14-20. Table 14 gives the results of the total Metropolitan score while the other tables contain the results of the six parts which comprise the total score.

Reference to Table 14 reveals two significant F-ratios, associated with the effects of race and sex (F's of 5.78 and 6.09, respectively; 1,120 d.f., $F=3.92$ $p<.05$). The two means, 44.3 and 50.0 for Negroes and whites respectively, indicate that the total readiness scores made by whites are on the average 5.7 points higher than those made by Negroes and that girls on the average exceed males by 5.9 points (means of 44.2 for males and 50.1 for

females). Although there was a difference of 3.9 IQ points between the two school groups, favoring the pre-kindergarten group, this difference did not quite attain significance even at the .10 level. Thus, although there is a weak trend towards statistical significance in support of the effects of pre-kindergarten experience which did not appear on entrance into kindergarten, the dominant effects of race and sex clearly overshadow it. As was demonstrated on entrance into kindergarten Negroes continue to perform more poorly than whites on typical tests of "intelligence" or "readiness."

It should be noted that no statistically acceptable difference for schooling was found in last year's Metropolitan evaluation either, although once again sex was discovered to be significant, with girls on the average scoring 6.2 points higher than boys, consistent with the present findings.

A review of other tables shows five more significant F-ratios confined to only three of the sub-tests: Work Meaning, Numbers, and Copying. Three of these were main order effects and the remaining two effects due to the interaction of sex x school. On Word Meaning, a difference of 1.0 points (Negroes - 6.9; Whites - 7.9) was found to be statistically significant ($p < .05$). A sex x school interaction, significant at $p < .01$ was also found. Race also produced a major effect on the Numbers section, with Whites attaining a mean score of 11.0 and Negroes a mean score of 9.3, the difference being statistically significant ($p < .05$). The sex x school interaction once again achieved an acceptable level ($p < .05$). The final difference occurred on the Copying section where males attained a mean of 3.8 and girls a mean of 5.5, the difference being significant at the .01 level.

The average score made on the total test was 47.2 which is equivalent to the 35th percentile or the 4th stanine when compared with the standard-

TABLE 21

MEAN SCORES AND MEAN DIFFERENCES BETWEEN 1968-69 and 1969-70 KINDERGARTEN GROUPS AND STANDARDIZATION GROUPS ON THE METROPOLITAN READINESS TESTS

Tests	Kindergarten Means		Standardization Means	Mean Differences	
	1968-69	1969-70		1968-69	1969-70
Word Meaning	5.76	7.44	8.67	-2.91	-1.23
Listening	8.48	9.27	8.89	-0.41	+0.38
Matching	4.80	6.80	7.50	-2.70	-0.70
Alphabet	5.96	8.87	9.39	-3.43	-0.52
Numbers	7.76	10.16	12.02	-4.26	-1.86
Copying	3.10	4.63	6.81	-3.71	-2.18

TABLE 22

MEAN PERFORMANCES OF PRE-KINDERGARTEN AND NO PRE-KINDERGARTEN GROUPS ON METROPOLITAN READINESS TESTS

Tests	Pre-Kindergarten	No Pre-Kindergarten
Word Meaning	7.61	7.27
Listening	9.64	8.91
Matching	7.08	6.52
Alphabet	9.28	8.45
Numbers	10.41	9.92
Copying	4.98	4.28

Figure 3. Comparison of Mean Scores of 1968-69 and 1969-70 Kindergarten Groups with Standardization Groups on Sub-Tests of Metropolitan Readiness Test

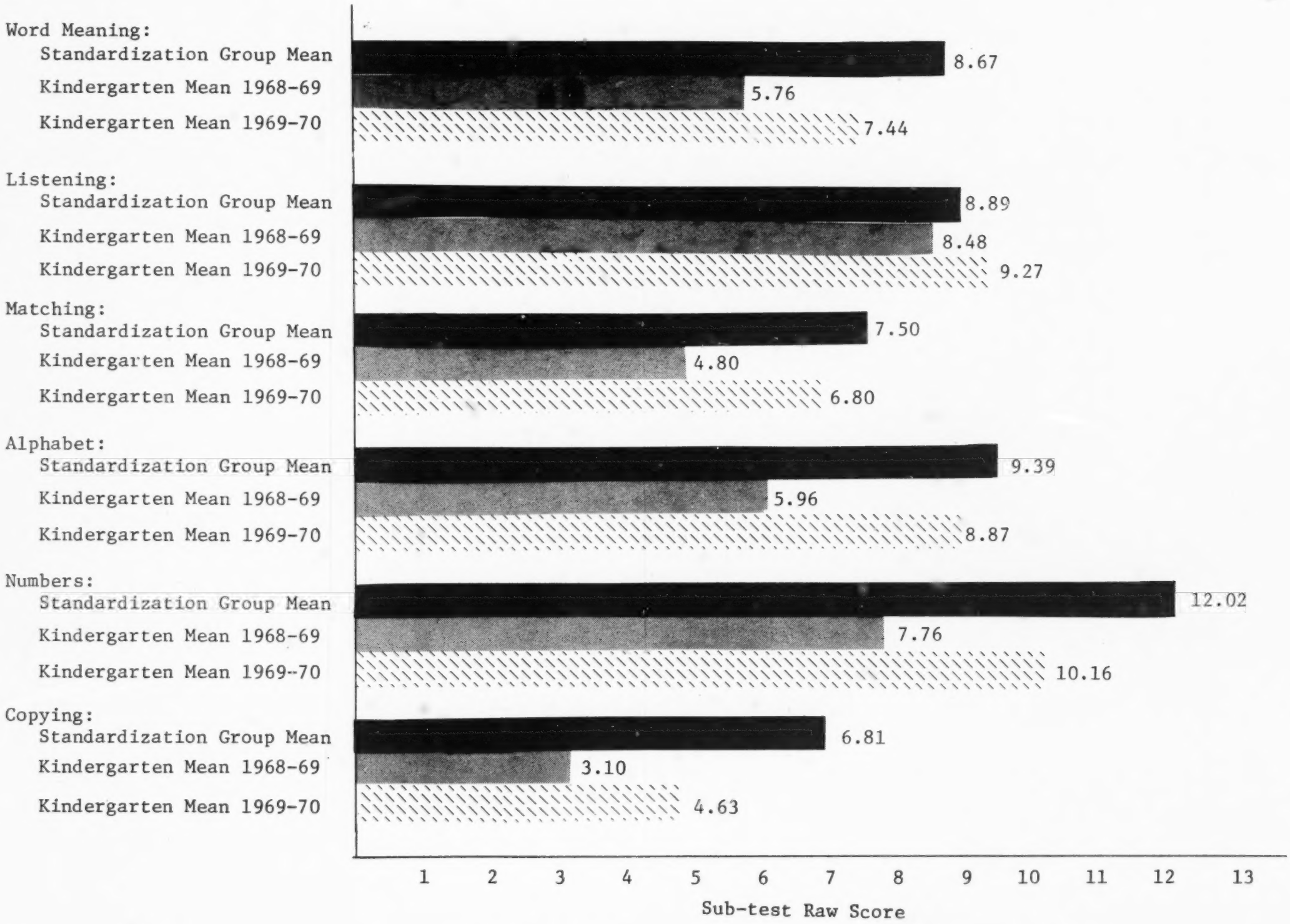


TABLE 23

READINESS STATUS OF KINDERGARTEN CHILDREN WITH AND WITHOUT EARLY CHILDHOOD EDUCATION (ECE) EXPERIENCE, AS INTERPRETED BY RESULTS ON METROPOLITAN TESTS

Score Range	Interpretation of the Score Range	With ECE Experience		Without ECE Experience	
		Number	Per Cent	Number	Per Cent
76+	"Apparently very well equipped for first grade work"	1	1.6%	3	4.7%
64-76	"Good prospects for success in first grade work . . . "	9	14.1%	2	3.1%
45-63	"Likely to succeed in first grade work . . . "	29	45.3%	26	40.6%
24-44	"Likely to have difficulty with first grade work . . . ."	24	37.0%	28	43.8%
Below 24	"Chances of difficulty high under ordinary instructional conditions . . "	1	1.6%	5	7.8%

ization population. Mean scores made by the pre-kindergarten and no pre-kindergarten groups were 49.1 and 45.2, respectively, equivalent to percentile ranks of 38 and 31. The total group mean of 47.2 (35th percentile) compares favorably with the previous year's mean of 35.8 which was equivalent to the 17th percentile. The generally higher scores on the Metropolitan this year will be discussed later. It is worth noting that the correlation coefficient (Pearson "r") between the Kuhlmann-Anderson and the Metropolitan total scores was 0.55 this year as compared with 0.67 last year.

Table 21 presents the mean scores and mean differences between the total kindergarten group for this year and last, with each group compared with the standardization groups on the Metropolitan Tests. As is readily apparent, all the subtest scores show considerable increases compared with last year's group, and more nearly approximate the means of the standardization group. In fact, on the Listening subtest, the present group actually slightly exceeds the standardization group.

These differences are graphically shown in Figure 3.

Table 22 compares the Pre-Kindergarten group with the No Pre-Kindergarten group on the six Metropolitan subtests. Although the differences are very slight and statistically insignificant, the Pre-Kindergarten group did attain higher scores on each of the parts.

Table 23 shows the distribution of "readiness status" scores on the Metropolitan, for the 128 children, according to whether or not they had pre-kindergarten experience. "Readiness status" corresponding to various ranges of total scores is provided in the Metropolitan manual.

According to the table in the manual, those below a score of 24 have a readiness status of "low" which is described thusly: "Chances of difficulty high under ordinary instructional conditions. Further readiness work, assignment to slow sections or individualized work, is essential."

Those between 24-44 are regarded as "low normal" and are "Likely to have difficulty in first grade work. Should be assigned to slow section and given more individualized help." Children between 45-63 are regarded as "average" and are "Likely to succeed in first grade work. Careful study should be made of the specific strengths and weaknesses of pupils in this group and their instruction planned accordingly." Scores from 64-76 place children in the "high normal range with "Good prospects for success in first-grade work provided other indications such as health, emotional factors, etc., are consistent. Finally, scores above 76 classify children as "superior" and describe them as "Apparently very well equipped for first-grade work. Should be given opportunity for enriched work in line with abilities indicated."

An analysis of the total scores indicates that eight more children who had been in the ECE program as compared with those who had not attained scores which categorize them as likely to succeed in first grade work. The situation is reversed in the "low normal" and "low" categories, particularly in the latter where eight more children were placed, who had not been in the ECE program. The possible statistical significance of this distribution of scores was evaluated by the Chi-Square test. A Chi-Square of 8.56 was obtained which failed to reach minimum acceptable statistical significance ($X^2 = 9.488$, $p < .05$, 4 d.f.) but fell between the .05 and .10 levels. One cannot, therefore, reject the hypothesis of no difference between groups. However, some apparent "carry over" effect is suggested even though one cannot place the same degree of confidence in the results.

III. FIRST-GRADE EVALUATION

The evaluation plan initiated in 1968-69 which assessed a sample of children then in the ECE program and a sample of those in kindergarten who had been enrolled the previous year's ECE program was extended this year to include first graders who were previously evaluated in kindergarten. As noted previously, it is hoped that this group and subsequent groups can be evaluated annually to follow their group progress (and, where possible, individual progress) through several years of elementary school so long as it seems profitable to do so.

Experimental Design

It was possible to locate and examine 77 children who had been in the previous year's kindergarten sample. Although only seven schools had been involved in the kindergarten evaluation, moves within the school system distributed these children into twelve different schools where it was possible to make testing arrangements. The experimental format used was identical with that used in the kindergarten evaluation. The factors of major interest remained sex, race, and whether or not the child had previously been enrolled in the ECE program. Since the experimental design involved treatment by ANOVA, the 77 children were reduced to 64 in order to simplify the analysis. These 64 children came from the following schools: Highview, Whittier, McNary, Louise Troy, Ruskin, Washington and one each from Emerson, Orville Wright, Belle Haven, Gettysburg, Jefferson Primary and Edison.

Personnel limitations made it infeasible to administer more than one instrument for this evaluation and one which could be administered in groups. Through the cooperation of the director of Testing and Guidance of the Dayton City Schools, it was possible to have the test administered

by the school counselor in each of the schools. Children were tested in small groups within a three-week period during the last weeks of May, 1970.

Description of Tests and Scoring

The Clymer-Barrett Prereading Battery, 1969 (Personnel Press, Inc., Princeton, N.J.) was selected as the assessment instrument. "Its purpose is to assess the pupils' levels of accomplishment in certain skills essential to learning to read." (Manual, P.5) The C-B Prereading Battery consists of six paper-and-pencil tasks and a Prereading Rating Scale (omitted for this evaluation). The six tasks are organized into three categories: Visual Discrimination (recognition of letters and matching words); Auditory Discrimination (discrimination of beginning sounds in words and discrimination of ending sounds in words); and Visual-Motor Coordination (shape completion and copy-a-sentence).

Although the test is designed for administration to groups of children after the middle of their kindergarten year or in the early weeks of first grade, it was still felt to be an appropriate instrument for these particular groups of children whose achievement levels are typically below the average, middle-class "advantaged" child. Another special consideration which entered into the selection of this particular test was that it was new, was not familiar to personnel in the school system and thus the possibilities of preparing children to take the test was obviated. The content of the test alone suggested that it would probably correlate well with the Metropolitan Readiness Tests and would be a logical instrument to use for follow-up.

Stanine equivalents and percentile ranks of both the short form and the long form (the latter used in this evaluation, requiring approximately 90 minutes of testing time) are provided in the manual.

Results

The data were subjected to ANOVA in a fixed factorial design with race, sex, and school or no-school as the three factors, each having two levels. Raw scores were used as cell entries with 64 children in the analysis.

The ANOVA's for the Clymer-Barrett and the three major sub-sections are presented in Tables 24-27. Reference to Table 24 for the total score analysis reveals no significant F-Ratios (1, 56 d.f., $F = 4.02$, $p < .05$, $F = 7.12$, $p < .01$). The effect of ECE experience which was statistically significant at the beginning of kindergarten in 1968 and which had disappeared by the end of kindergarten in 1969 was not regained in the first grade and may be presumed to be "lost." Even the significant sex difference noted on the Metropolitan also disappeared on this test, at least on the total score.

A survey of the three other tables shows two significant F-ratios on the Visual Discrimination section for a race x sex interaction and for a race x school interaction. The Auditory Discrimination section also reveals two significant F-ratios, one for the main effect of race and one for the interaction of sex x school. The Visual Motor section also fails to produce any significant differences. Thus school as a factor enters into two significant differences but only when combined with another factor.

A review of the analysis for the total score indicated that for each of the major group pairs (NM, NF, WM, and WF) those with pre-kindergarten experience outscored those without ECE experience by 5 or more points with the exception of the NF group where those without ECE experience scored on the average 11 points higher than those with the experience. On the total score, the Pre-Kindergarten group did, in fact, score on the average 2.8 points higher than the No Pre-Kindergarten group, but such a small difference

was not statistically significant. (Pre-kindergarten mean is 101.5 and No pre-kindergarten mean, 98.7.) The typical score made by the entire group was 100.1, all three means being within the sixth stanine (stanines determined for the standardized group at mid-K or in early weeks of first grade).

Another way of viewing the distribution of scores made by the two schooling groups is provided in Table 28 which classifies these first graders by stanines on the Clymer-Barrett according to whether or not they had pre-kindergarten experience. Visual inspection indicates that in general, children with ECE experience made higher stanine equivalents than those without. The possible statistical significance of this distribution of scores was evaluated by the Chi-Square test. A Chi-Square of 7.64 was obtained which barely failed to reach minimum acceptable statistical significance ($X^2 = 7.815$, $p < .05$, 3 d.f.). Thus, much like the Metropolitan Tests, though one cannot reject the hypothesis of no difference between groups, it appears that there is some carry over effect from the ECE program. However, one is dealing with grosser figures in considering stanines as compared with the raw score distributions.

The correlation between the Kuhlmann-Anderson total scores (taken in October, 1968) and the Clymer-Barrett total scores for this group of 64 children was 0.35. Correlation between the Metropolitan Readiness Tests total score (taken in May, 1969) and the Clymer-Barrett total score was 0.52.

TABLE 24
ANALYSIS OF VARIANCE OF TOTAL CLYMER-BARRETT SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Race	534.76563	1	534.76563	2.891
Sex	236.39063	1	236.39063	1.271
School	129.39063	1	129.39063	....
Race x Sex	244.14063	1	244.14063	1.320
Race x School	310.64063	1	310.64063	1.680
Sex x School	656.64063	1	656.64063	3.550
Race x Sex x School	213.88281	1	213.88281	1.156
Within	10360.37500	56	185.00668	
TOTAL	12686.22700	63		

TABLE 25
ANALYSIS OF VARIANCE OF CLYMER-BARRETT VISUAL DISCRIMINATION SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Race	20.25000	1	20.25000	....
Sex	4.00000	1	4.00000	....
School	3.06250	1	3.06250	....
Race x Sex	105.06250	1	105.06250	4.112*
Race x School	110.25000	1	110.25000	4.315*
Sex x School	81.00000	1	81.00000	3.170
Race x Sex x School	1.56250	1	1.56250	....
Within	1430.75000	56	24.54910	
TOTAL	1755.93750	63		

* $p < .05$

TABLE 26
ANALYSIS OF VARIANCE OF CLYMER-BARRETT AUDITORY DISCRIMINATION SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Race	256.00000	1	256.00000	5.167*
Sex	95.06250	1	95.06250	1.919
School	64.00000	1	64.00000	1.292
Race x Sex	0.56250	1	0.56250	....
Race x School	2.25000	1	2.25000	....
Sex x School	232.56250	1	232.56250	4.694*
Race x Sex x School	150.06250	1	150.06250	3.029
Within	2774.50000	56	49.54463	
TOTAL	3575.00000	63		

* p .05

TABLE 27
ANALYSIS OF VARIANCE OF CLYMER-BARRETT VISUAL MOTOR SCORES

Source of Variation	Sum of Squares SS	Degrees of Freedom df	Mean Square	F Ratio F
Race	6.89063	1	6.89063	....
Sex	13.14063	1	13.14063	....
School	26.26563	1	26.26563	....
Race x Sex	21.39063	1	21.39063	....
RAce x School	74.39063	1	74.39063	2.788
Sex x School	1.89063	1	1.89063	....
Race x Sex x School	1.26563	1	1.26563	....
Within	1494.12500	56	26.68080	
TOTAL	1639.35940	63		

TABLE 28

STANINE CLASSIFICATION OF FIRST GRADERS WITH AND WITHOUT ECE EXPERIENCE ON CLYMER-BARRETT PREREADING TEST

Stanines	With ECE Experience		Without ECE Experience	
	No.	%	No.	%
9	2	6%	0	0
7 - 8	17	53%	16	50%
4 - 6	12	38%	16	50%
2 - 3	1	3%	0	0

EVALUATION SUMMARY OF ECE PROGRAM

Summarizing such a complex, multi-faceted and sometimes inconsistent mass of data into simple, uncomplicated generalizations is a staggering task and does injustice to the previous attempts to consider the results in detail and from several points of view. As previously indicated, the present evaluation is a continuation of the assessment program model initiated in the 1968-69 school year which attempts to measure not only the effects of the ECE program on children currently enrolled, but plans to evaluate whether the program has any enduring effects as these children progress through kindergarten and the primary grades. It seems of obvious interest and importance to consider not only the immediate impact of the program, but to evaluate whether it has a lasting effect on the major facet of the program that was singled out for study, that of cognitive skill development, particularly the pervasively important language skills.

The critical problem confronting advocates of such a program as ECE is to be able to present evidence to support the assertion that the program does, in fact, do what it purports to do, and that children who have participated in it have progressed beyond the levels that might be expected if they had not been in the program. While the ECE program has a variety of objectives (motivational and social development, improved self-concept, cognitive skills, etc.), the general cognitive area has been chosen because it is most amenable to measurement and because cognitive achievement is certainly regarded as the major criterion of traditional educational progress.

A modified random sampling of children in the ECE program was performed insuring that all 22 centers would be represented. These children were measured on a variety of cognitive tasks involving language, visual-motor integration skills, auditory discrimination, body awareness and self-control.

They were found to show considerable growth on each of the tasks with the largest and most consistent gains occurring in language related areas. Although a true control group was again unavailable because of the practical limitations imposed in locating, evaluating and compensating a comparable sample of children not enrolled in the ECE or another pre-school program, it was possible to offer several pieces of indirect evidence from other similar programs supporting the effectiveness of ECE. It was also possible this year to offer another test of its impact by comparing the performances of high (more than 30 days absence) and low (less than 30 days) absence groups drawn from the original sample. On every task, the low absence group attained a higher performance level than the high absence group, and, despite the fact that the two groups did not contain only the most extreme attendance cases, some statistical significance was obtained. Had the cut-point been set higher a visual analysis of the data suggested that much sharper divergence would occur.

One study was cited from the American Institutes for Research survey (Foundations for Success in Educating Disadvantaged Children) which concluded for the preschool program of Fresno, California, that "there is little room for doubt about the success of the program", basing the judgment upon a Peabody Picture Vocabulary Test increase of 12 IQ points in a one year program. The present program produced a change of 17.9 IQ points on the same test which should leave even less doubt about its successful effect on at least one aspect of cognitive achievement--hearing vocabulary growth.

The evaluation also showed that Negro males on the average attain lower post-program scores than any other of the four groups, especially lower than the White female group who, in general, perform at the highest level. Even with the advantages of the program, children were still found at the end of the program to be functioning from 3 to 8 months below age level on the various tasks.

A comparative evaluation of kindergarten children with and without ECE experience was also performed at the beginning and at the end of kindergarden. No differential effects due to ECE experience were found either at the beginning or at the end of kindergarten, but race was found to be significant on both evaluations and sex also showed an effect on the terminal evaluation. On both evaluations white children scored significantly higher than Negro children. On the post-kindergarten evaluation, girls' performances exceeded that of boys. The failure to find any effects due to ECE experience raises some critical questions which cannot be completely or unequivocally answered at the present time. Since the ECE program had a measureable effect on the previous year's initial kindergarten results (which "faded" by the end of kindergarten), it had been anticipated that similar results would again be obtained. Several possible explanations for this failure were offered, but only further longitudinal study will help provide better explanations.

An analysis of the distribution of readiness status scores on the Metropolitan Readiness Tests, according to whether or not the children had ECE experience, revealed that more children with ECE experience were classified as likely to succeed in first grade work and fewer were classified as unlikely to succeed when compared with those who had no ECE experience. Although the distribution did not achieve statistical significance, some apparent "carry-over" effect is suggested, especially in view of very similar results last year.

Once again the scores for the total group (or the ECE group taken separately) place these children below the average score made by the standardization group, although all the subtest scores showed considerable increases when compared with last year's group. For 1969-70, the mean score for the total group was equivalent to the 35th percentile as compared with only the 17th percentile last year (fourth and third stanines, respectively).

First graders were added to the evaluation this year, using those children who had been evaluated in kindergarten the year before. The results on a group prereading test did not support the superiority of children with ECE experience as compared with those who had not been in the program, at least in terms of average scores obtained, although the results suggest that the failure to find significance could be attributed to one particular subgroup among the four classified groups. However, stanine classifications for the ECE vs. no-ECE experience groups on the same test indicate a distribution of scores that is supportive of, but not statistically significant for, generally better performance levels for those children who had previously been in the ECE program.

The results for the children currently enrolled in the ECE program would appear to leave little doubt that it has a significant, positive impact on the development of general cognitive skills. The magnitude of change on many of the criterion instruments could in no way logically be attributed to chance or to maturation alone, and evidence, both direct and indirect, was presented to support this assertion. However, the same superiority could not be demonstrated for ECE trained children in either kindergarten or the first grade when compared with children who had not been in the program, except for suggestive data which could be used in a modest way to support generally higher classifications on group tests of readiness. None of the results of either the kindergarten or first grade evaluations would, at this point, permit vigorous support, although the previous year's assessment did demonstrate a clear-cut superiority of ECE trained children on entrance into kindergarten. The evaluation for the 1970-71 program should provide additional perspective on the subsequent fates of such children when, hopefully, second graders can be added to the assessment program. The consistency of results over several years' evaluations will be a critical

factor in the kinds of conclusions which can ultimately be drawn concerning the value of the Dayton EARLY CHILDHOOD EDUCATION as a basis for improving cognitive skills of the disadvantaged.

At the present time, the results only permit one to say that children do benefit, as far as cognitive skills are concerned, in demonstrable ways from their experiences in the ECE program, but the thrust is quickly lost--perhaps even in a three months' period <u>without reinforcement</u>--and is not evident in general cognitive functioning in either kindergarten or the first grade. Assuming that the tests used in kindergarten and the first grade are valid measures of what is being generally taught and learned in the ECE program, the critical question is what happens to these demonstrated gains and how they become "lost" in subsequent months and years. There are a myriad of possible explanations which might be invoked, beginning with the nature of the kindergarten and first grade tests used, and perhaps concluding with the possibilities that the type or quality of experiences encountered in kindergarten and the first grade are not stimulating enough to continue the "push" given in the more individualized, experience-oriented ECE program. Such findings seem to be more the rule than the exception.

As indicated in other studies, the common denominator among most intervention programs for improving the educability of young children from low income homes is that intervention causes a rise in "intelligence" which is fairly marked at first, then levels off and finally tends to show a decline once intervention ceases.

The present evaluation suggests certain target groups for even more specialized attention at the pre-kindergarten level, even though the overall program produces definite general growth and development. In view of the now widely accepted idea that, to be really successful, intervention programs should be introduced as early as possible in the lives of children

from low income homes, possibly in infancy and no later than two years of age, it is perhaps remarkable that such broad-guage programs as ECE are able to produce the results that they do. While this relatively brief program (135 three-hour days) obviously influenced these children, it has not in that time period brought them up to performance levels made by children from more "advantaged" circumstances. The planned evaluation for 1970-71 will attempt to begin an assessment of the effects of increased time in the ECE program.

A most succinct and eloquent statement of the philosophy of preschool education and the subsequent careers of children from deprived circumstances is provided by R. A. Klaus and Susan W. Gray in a 1968 monograph describing five years' experience with their early training project (Klaus, R. A. and Gray, S. W. "The Early Training Project for Disadvantaged Children: A Report After Five Years." Monograph of the Society for Research in Child Development, 1968, 33 (4, Serial No. 120):

> "The most effective intervention programs for preschool children that could possibly be conceived cannot be considered a form of inoculation whereby the child forever after is immune to the effects of a low-income home and of a school inappropriate to his needs. Certainly, the evidence on human performance is overwhelming in indicating that such performance results from the continual interaction of the organism with its environment. Intervention programs, well conceived and executed, may be expected to make some relatively lasting changes. Such programs, however, cannot be expected to carry the whole burden of providing adequate schooling for children from deprived circumstances; they can provide only a basis for future progress in schools and homes that can build upon that early intervention."

The evaluation of the present program would appear to underscore the truth and wisdom of this statement.

RESUMÉ:
SENSORIMOTOR SKILLS PROGRAM

A Component of
EARLY CHILDHOOD EDUCATION
ESEA: TITLE I, FY 1970

Dayton Public Schools
348 W. First Street
Dayton, Ohio 45402

Wayne Carle, Superintendent

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SENSORIMOTOR SKILLS DEVELOPMENT IN THE PRESCHOOL PROGRAM

Sensorimotor training has become an integral part of the curriculum of the Dayton Early Childhood Education Program during the last three years (1967 to 1970). For a description of the earlier years, see the ECE Resumes FY 1968 and FY 1969.

The importance of making a strong appeal to spontaneous activity and to sensorimotor manipulations with young children has been stated succinctly by Jean Piaget:

> "Today we know that the processes of intelligence are, above all, matters of action and that a development of the sensorimotor functions, in the full sense of free manipulation as much as of perceptual structuration encouraged by manipulation, constitutes a sort of propaedeutic that is indispensable to intellectual training itself."[1]

Balance and Perception

The necessity for well-developed plans for this type of training has become more and more apparent as nationwide attention is focused on the young child. A recent conference of early childhood educators and physical education educators was called to explore the relationship of motor development to other aspects of development--emotional, social, and intellectual, and to exchange ideas about an appropriate environment which would facilitate motor development in young children.[2]

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1 Jean Piaget: Science of Education and the Psychology of the Child. (Translated from the French by Derek Coltman) New York: Orion Press. 1970

2 The Young Child: The Significance of Motor Development. (Proceedings of Interdisciplinary National Conference, Jointly Sponsored by NAEYC and AAHPER) Washington, D.C., 1971

Preschool sensorimotor training is all the more important because of the general lack of the necessary planned physical education experiences under trained professionals at the primary school level as indicated in this recent statement:

> "We have a few new ideas in physical education, but not enough. We need more and we need to rekindle some old ideas that we never adopted. Perceptual motor theories, for example, spell out the significance of motor activities for ages three through seven. Most school districts do not have full-time elementary physical education specialists for each school, yet they are the most important years. In the studies of kindergarten children, the greatest deficiency of many has been in the area of motor encoding, but where is the physical educator in most kindergarten and first year classes in the United States?"[3]

As action, or movement, is the natural language of the child's body at this age, his ability to use his body well in play situations becomes vitally important to his self-concept when he compares himself with other children. If he can run, jump, skip, throw a ball, etc., as well as his peers, he knows he is adequate. This is the first important step in developing a value of self. Recent research in education concludes that a pre-school child's self-concept is as good a predictor of academic achievement as any IQ score.[4]

To encourage preschool teachers and parents in the use of pre-planned daily experiences to help children to develop an awareness of and an ability in sensorimotor skills, three of Dayton's ECE staff worked out a manual as a guide to developmental sensorimotor training.[5] Teachers have reported that this type of program provedes many experiences which lead children to feelings of success and which help to build a good self-concept.

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3 Don S. Glines: Implementing More and Better Schools. Mankato, Minnesota: Mankato Press.

4 Claire Clifford, and William Wattenburg: Relationship of the Self-Concept to Beginning Reading Achievement. Detroit, Michigan: Wayne State University.

5 William Braley, Geraldine Konicki, and Katherine Leedy: Sensorimotor Training for Teachers and Parents of Pre-School Children. Freeport, Long Island, N.Y.: Educational Activities, Inc. 1969

Big Leap!

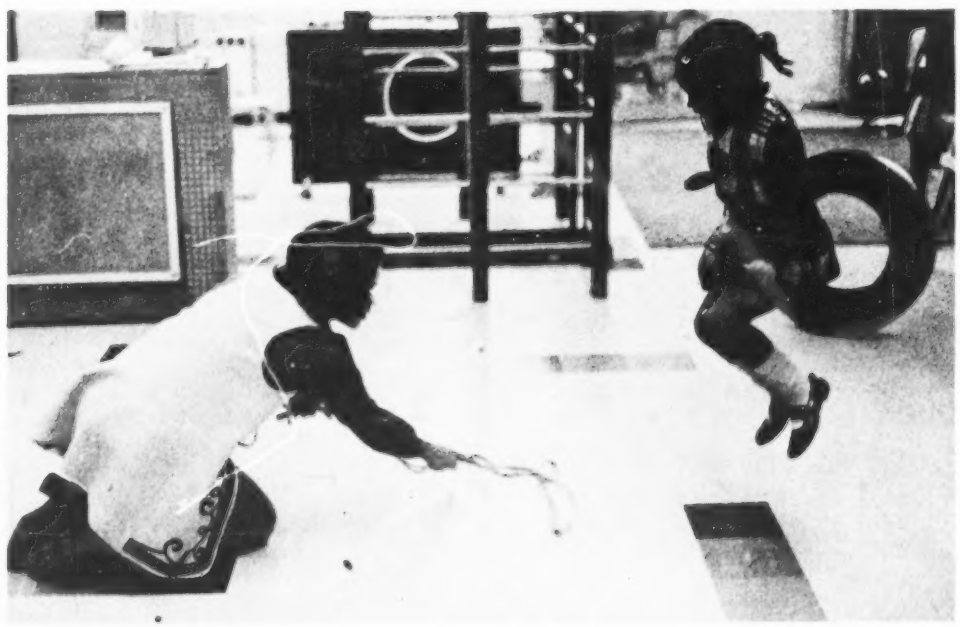
(Jumping and Large Muscles at Work)

Cross-over Step

(Eye-Foot Coordination and Integration of Body Skills)

Jump the Shot!

(Eye-Foot Coordination and Jumping)



Besides the written guide, implementation of the program has been further carried out with the help of three sensorimotor training specialists who make regular visits to the preschool classrooms to instruct the children in activities not covered in the daily sensorimotor training manual. Examples of this training have been: parachute play, scooter board skills, rhythms, eye-hand coordination with yarn balls, eye-foot coordination with hula hoops, and other large and small muscle activities.

Top priority schools (those with the greatest degree of economic and educational disadvantage) had the services of a specialist approximately nine times during a 7-month period. Second and third priority schools were visited seven and five times, respectively.

In-service training of teachers and aides was also provided through their viewing the locally produced film, "Sensorimotor Training." Further recognition came to the Dayton Early Childhood Education Sensorimotor Training Component through the showing of this film in many major conferences throughout the United States, including the White House Conference on Children. (See APPENDIX for list of school systems using the film.)

Introduction to Water Skills

Begun as an experiment of a single splash time for preschoolers in the 1968-69 ECE Program, the Introduction to Water phase of the Sensorimotor Training Program was continued with a skill emphasis in 1969-70, under the direction of three Water Safety Instructors of the American Red Cross. One of their recommendations of the previous year had been that they would like to take a group of these very young children with a zest for "doing" through an ARC Beginners' Swim Course, for they felt these children would learn the swim skills "at a much faster rate than the average tiny tot program."

(After his initial Red Cross splash experience in an ECE class last year, one youngster did show up later in the ARC Learn-to-Swim Program. After a few

minutes with the pre-school group, he was placed with a group of 8-10-year-olds and kept up with them in all the skills covered, much to the amusement and amazement of his classmates. Unfortunately for evaluation, he attended only about 5 days, having registered late and leaving before completion of the session!)

Between February and May of 1970, a total of 228 children from the five Top Priority Schools and Shawen Acres Home for Children registered with the American Red Cross Beginner Skill Program, with the opportunity to attend three sessions. Table 1 below indicates the extent of their participation.

TABLE 1
REGISTRATION AND ATTENDANCE IN EARLY CHILDHOOD SWIM PROGRAM
February to May, 1970

Participation	Edison	Emerson	Irving	MacFarlane	Louise Troy	Shawen Acres	TOTAL No.	%
3 sessions	31	30	14	41	28	5	149	65%
2 sessions	4	17	14	9	10	0	54	24%
1 session	5	2	8	4	5	1	25	11%
TOTAL REGISTRATION	40	49	36	54	44	6	228	100%
TOTAL STUDENT ATTENDANCE	106	126	78	145	109	16	580	

The following evaluation was written by the ARC Water Safety Instructors who worked with the preschoolers in the 1969-70 Introduction to Water Skills Program:

"The skills listed here are not to be compared to the progressions as perfected and entered on the RC Beginner Skill Sheets. These progressions were in a very primitive form, but the child moved within the mental and physical limits of a four-year-old before he was given credit for the skill. (After all, a four-year-old cannot be expected to play baseball with the same ability as that of a ten-year-old.)

"We asked these children to do a tremendous variety of physical movements involving a great deal of mental and physical coordination in a short period of time and in an entirely new element--water. They tried hard and ended with a little bit of everything--in other words, the beginnings of a great variety of skills, but complete mastery of none. All ARC Beginner Skills were basically covered.

"Time was not on our side. However, we felt that in touching on all the beginner skills, the children would be mentally and physically much more flexible in and around water. They would have a broader basis on which to progress on their own and would have a broader idea of their own limitations and of their dependence on adults, as far as personal safety was concerned. If a child is told he must not swim alone or go in deep water, he may not heed the warning, but he is more likely to get the idea if he finds himself helpless in deep water and has to be pulled in by an adult. So, if they heeded us not, we let them wander out until they needed help! Similiarly, if a child has been shown how to 'wind his arms' and 'kick his legs', in a prone position or a standing position to propel himself forward or upward, he is less likely to panic than a child who, in the same period of time, has mastered only the prone float and kick. Also, a child who has only the one skill is not able to progress on his own as is the child who has many skills to work with.

"Each swim period was of 3-40 minutes duration (depending on who was watching the clock). This time period covered approximately 10 minutes of demonstration--the Arky story plus 'washing hands and face, neck 'n ears, and sitting on the side and kicking. The rest of the period was in the water with individual instructors.

"The hardest part of the land work was done in the classroom for two weeks before coming to the pool, namely, the teaching of breath-holding and inhaling and exhaling under water. The sensorimotor consultants went to the schools armed with dishpans, straws, washcloths and towels, and Arky wrapped up in a paper bag. The schools provided the mops to wipe up the spilled water, but there was no quick way to dry the sweater of the boy who proudly showed that he could put his arms in the water also. This classroom plan was a great time saver, much easier than trying to explain, in four-year-old language, that breathing in water is not automatic, while the class looks longingly at the water in the pool and wishes the instructor would stop talking.

"As far as we could ascertain, only about half a dozen had had any prior water experience. None had previous swim instruction and one had refused to enter the water with her family (she ended up able to do 'combined stroke front' and went down the pole).

"The group from Edison School was the youngest group. Many were in the 3-4-year-old group, whereas the rest of the school had 4-5-year-olds. Shawen Acres had the oldest group (primary grades) and two children who were handicapped. We might add that the younger group had too much fun and wouldn't pay as much attention as the more mature 4-5-year-olds.

"In the first class from MacFarlane the group was divided in half by sex. The boys went in just while the girls watched. The boys were 'dead'--the girls tried everything and anything. Next time we mixed them up and they all went ahead. (We did not try the separation in reverse.) No difference was noticed from those who watched while awaiting their turn.

"The majority did not want to go on their backs during the first and second sessions. They would do so in the third session, but couldn't be bothered working very hard at this skill. They were more interested in working on skills already learned.

"Follow up on the safety rules, geared to the children, was accomplished at school following the completion of the swim sessions. Individual reports and lists of safety rules were sent to the parents."

(Pat Shirk, Betty Hole, Harold Solomon, Water Safety Instructors,
American Red Cross)

LONGITUDINAL RESEARCH STUDY

A longitudinal research study concerning the effects of sensorimotor training on four-year-old children and its possible relationship to school achievement at the end of the first grade was begun in the Early Childhood Education Program in 1967-68 and continued during the next two years.

An experimental group of children was given sensorimotor training in ECE centers during their pre-kindergarten year and were individually tested with a locally developed sensorimotor criterion test at the end of the year. A matching control group was arranged to be tested in the Miami Valley Child Development Centers where they had received no specialized sensorimotor training during preschool. A summary of the longitudinal design is given in Table 2 below.

TABLE 2

LONGITUDINAL RESEARCH DESIGN TO DETERMINE EFFECTS OF SENSORIMOTOR TRAINING OF FOUR-YEAR-OLD CHILDREN AND ITS RELATIONSHIP TO SCHOOL ACHIEVEMENT AT THE END OF FIRST GRADE

Phase	Age Level Tested	Groups Tested	Purpose
Phase I 1967-68	Pre-kindergarten (4-year-olds)	Experimental group in ECE preschool being given sensorimotor training. Control group in day care centers (Miami Valley Child Development Centers) where they received no specialized training in this field.	To determine the effect of 7 months' training in sensorimotor areas during prekindergarten.
Phase II 1968-69	End of kindergarten year (5- to 6-year-olds)	All matched pairs of the experimental and control groups that could be located in the Dayton area.	To determine if effect of sensorimotor training continued through kindergarten, or became obscured by effects of maturation.
Phase III 1969-70	End of first year of school (6- to 7-year-olds)	All matched pairs of the experimental and control groups that could be located in Dayton area first year classes.	To determine the relationship, if any, of early sensorimotor training on first grade achievement.

Conclusions of Phase 1

As reported in Resumé: EARLY CHILDHOOD EDUCATION FY 1968, the use of an analysis of variance design showing the effects of age levels within the pre-kindergarten group, the effects of training, and their interaction brought these conclusions for the first phase of the study:

1) Age levels had a significant effect on sensorimotor performance at the end of pre-kindergarten experiences.

2) Treatment, or training in specific sensorimotor skills, had a significant effect on sensorimotor performance, for pre-kindergarten children.

3) The effects of age level, or maturation, and training in sensorimotor skills interacted to a significant degree at the end of the pre-kindergarten period.

Both treatment and the treatment x levels sources of variance proved significant at the .001 level, while the age levels source of variance proved significant at the .001 level, while the age levels source of variance was found to be significant at the .05 level.

Early in the study it was recognized that kindergarten experiences would foster the learning of sensorimotor skills for all children and that maturation would likely continue to be a factor. That the early advantage of the pre-schoolers who had had the sensorimotor training might not continue was recognized in the following statement from the report[1]:

> "There is a possibility, of course, that the early advantage for pre-schoolers may be submerged within the next year or two of kindergarten and first year of school. If this should happen, then, based upon the results of Phase I, the existential rationale for the sensorimotor training could still be applied: that a child's pre-school training in body awareness and in the developmental sensorimotor skills do provide natural activities, involving many successes, and that this training gives him, in the beginning, a 'sound base upon which to build the perceptual skills which will be needed in future classroom activities.'"

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1 Division of Research, Resumé: Early Childhood Education FY 1968, Dayton City Schools, Dayton, Ohio. 1968.

Conclusions of Phase II

Because some children could not be found enrolled in Dayton kindergartens or in schools near Dayton, the number of subjects for both the experimental and control groups was cut from 76 each to 65 each for the second phase of the study.

As a result of the analysis of variance of Phase II, the following conclusions were drawn:

1) In sensorimotor performance at the end of the kindergarten period, age levels, or maturation, still had a significant effect.

2) Treatment, or early pre-kindergarten training in sensorimotor skills, maintained a significant effect on the sensorimotor performance at the end of the kindergarten period.

3) The effect of age level, or maturation, and early pre-kindergarten training in sensorimotor skills, interacted to a significant degree at the end of the kindergarten period.

In interpretation of these conclusions, the following statements were made in the report[2]:

"These conclusions are even more important when it is recognized that the subjects of the control group had the opportunity of participating in kindergarten programs which, in many cases, included class activities in the sensorimotor areas. Yet a significant difference persisted in the experimental group whose subjects had had the advantage of carefully-planned early sensorimotor training in the pre-kindergarten.

"That a significant difference persisted, also, in age levels, regardless of training, points up the necessity for early childhood educators to recognize maturation as a factor in sensorimotor skills at both pre-kindergarten and kindergarten ages, requiring some attention to be given to individual needs.

"Stated in non-statistical terms, the conclusion appears warranted that children who have had training and experiences in a wealth of sensorimotor activities before kindergarten approach their first year of school with an advantage in this area over those children who have lacked the early sensorimotor training."

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[2] Division of Research, Resume: Early Childhood Education FY 1969. Dayton City Schools, 1969.

The report of Phase II also referred to a report of the 1968 Perceptual-Motor Symposium conducted by the American Association for Health, Physical Education, and Recreation, which was summarized in this way:

> "The prime concern in motor learning is to develop effective motor behavior in whatever situation an individual finds himself. Interest in perceptual abilities centers mainly on their influence in learning and performing motor tasks."[3]

The report of the AAHPER symposium advised caution "against building physical education on the basis of developing better readers until more evidence is available", but left the door open to possible demonstration that motor development does influence perceptual and cognitive abilities with the stated expectancy that <u>if</u> the relationship could be demonstrated, "then physical educators should be responsible for programs to enhance this development."

The Phase II report of the Dayton ECE longitudinal study also noted "that the effect of the early gains in sensorimotor development may become submerged as the two groups are studied for achievement in other learning areas." However, the investigators were of the opinion that if this should happen during Phase III of the study, the lack of relationship between a carefully planned developmental sequence of sensorimotor activities and cognitive achievement in certain skills would not, in itself, warrant a discredit of the sensorimotor program. The Phase II report concludes:

> "Such an outcome would not, however, negate the value of the pre-kindergarten sensorimotor program <u>for its own sake</u>: that of contributing to the developmental tasks of physical skills, wholesome self attitudes, and socialization."[4]

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3 Hanson, Margie R. (editor), <u>Perceptual-Motor Foundations: A Multi-disciplinary Concern</u>: Proceedings of the Perceptual-Motor Symposium sponsored by the Physical Education Division of the American Association for Health, Physical Education, and Recreation, National Education Center, Washington, D.C., May 8-10, 1968.

4 <u>Op. Cit</u>.

Phase III of the Longitudinal Study

Due to family mobility, only 43 of the original 76 pairs could be located in Dayton schools or in nearby schools at the end of the subjects' first year in school, about 57% of the original group. In following the design of the study, when one member of the pair could not be located, the other was dropped; this procedure kept the experimental and control groups equated as to the proportion of boys and girls and, generally, as to age levels.

The 86 subjects of Phase III were found to be attending 16 Dayton Schools and 10 suburban schools.

However, for the analysis of variance computation of Phase III of the longitudinal study of the effects of sensorimotor training, three treatment groups were used instead of two as in Phases I and II.

Sixteen subjects were found to be attending the three Dayton schools using the Engelmann-Becker Follow Through programmed materials and methods (a derivative of the Bereiter-Engelmann program), a specially designed first year program for disadvantaged children which focuses on academic objectives and utilizes total response techniques supported by reinforcement principles. The Dayton Follow Through Program was funded through National Follow Through, ESEA Title 1, and state Disadvantaged Pupil funds. Assisting the classroom teachers whose salaries were paid from the local General Fund, were classroom aides and resource teachers, supervised by a curriculum director and the Follow Through coordinator. This first year Follow Through Program was considered to be sufficiently different in curriculum materials and in teaching techniques for the subjects to be considered as having had a separate treatment. Of the 16 subjects tested in the Follow Through first year program, 13 had had ECE experience and its sensorimotor program and 3 had not.

In the remaining 13 Dayton Schools and in the 11 suburban schools, the first year curriculum generally followed a system-adopted reading program for

first year pupils. Of the subjects tested in these schools, 30 had had ECE experience and its preschool sensorimotor training while 40 subjects had been in day-care centers during their pre-kindergarten year.

Table 3 below shows the distribution of the subjects by schools.

TABLE 3
DISTRIBUTION OF SUBJECTS BY SCHOOLS IN PHASE III OF LONGITUDINAL STUDY

School	Number of Pupils		
	System-adopted Reading Plan for 1st Year		FOLLOW THROUGH
	ECE Sensorimotor Training in Pre-Kindergarten	Without Sensorimotor Tr.	Engelmann-Becker Program in 1st Yr.
	A	B	C
DAYTON SCHOOLS			
Belmont	..	1	..
Cornell Heights	..	1	..
Edison	..	..	11
Greene	..	..	4
Highview	1	1	..
Irving	5	2	..
Jefferson Primary	..	7	..
Jackson Primary	2	1	..
Longfellow	1	1	..
MacFarlane	9	5	..
McGuffey	..	6	..
Louise Troy	..	..	1
Weaver	7	..	..
Westwood	1	..	..
Residence Park Pri.	2	..	..
Whittier	1	..	..
SUBURBAN SCHOOLS			
Central (Fairborn)	..	3	..
East "	..	1	..
Emerson-Palmer "	..	1	..
Five Points "	..	1	..
Wright "	..	1	..
Grafton-Kennedy	..	1	..
Jefferson Twp (Mont.Co)	..	1	..
McKinley (Xenia)	..	1	..
Simon-Kenton "	..	3	..
Radcliff	1	..	..
Spring Hill	..	1	..
UNDESIGNATED	..	1	..
TOTAL	30	40	16

During the last month of the 1969-70 school year, at the completion of their first year in school, the subjects were individually administered Gray's Oral Reading Test and the Wepman Auditory Discrimination Test. No sensorimotor test was administered in Phase III.

Summary for the ANOVA for the results of Gray's Oral Reading Test is given in Table 4 below, an analysis of variance weighing the three treatment groups of Table 3.

TABLE 4
ANALYSIS OF VARIANCE OF GRAY'S ORAL READING TEST SCORES

Source of Variance	Sum of Squares SS	Degrees of Freedom df	Mean Squares ms	F Ratio F	Comment
TOTAL	702.70	85	...	...	
Between groups	95.56	2	47.78	6.54	Significant at .05
Within groups	607.14	83	7.31	...	

The significance found between groups indicates that there was a significant difference in reading achievement as measured by Gray's Oral Reading Test between at least the members of one pair of the three treatments. To determine which pairs were significantly different, the t-Test for Differences Among Several Means was used. The summary is found in Table 5.

TABLE 5
SUMMARY OF t-TEST FOR DIFFERENCE AMONG SEVERAL MEANS OF GRAY'S ORAL READING TEST

Mean Score for Each Group (Months):	A 4.167	B 3.725	C 1.250
Standard Error of the Differences Among Means:	0.76		
Critical Difference	At .05 Level 1.52	At .01 Level 2.0216	
Differences Between Means	A and B 0.442 n.s.	A and C 2.917*	B and C 2.475*

* Significant Difference

As indicated in Table 5, a significant difference exists between the reading achievement scores of Group A (the experimental subjects who had had a planned program of sensorimotor training in the Early Childhood Education Program and who had been instructed in a system adopted reading program during their first year) and the scores of Group C (subjects being instructed in the programmed Follow Through Program in their first year, 13 having had sensorimotor training and 3 without). A significant difference also exists between Group B (the control group who had attended preschool day-care centers without sensorimotor training and who had been instructed in a system adopted reading program during their first year) and Group C (the Follow Through group).

No significant difference was found between Group A (the experimental group not in Follow Through) and Group B (the control group not in Follow Through).

These results can be interpreted to suggest that the planned early sensorimotor activities in pre-kindergarten did not have a measurable effect on the skill of learning to read during the subjects' first year in school, if the subjects were in schools operating under a system adopted plan. Since both experimental (A) and control (B) groups had a measurable reading achievement significantly higher than that of the Follow Through group (C), the difference cannot be said to derive from the effect of the sensorimotor training in the preschool year for Group A.

For all three groups, the number of months gained in reading achievement was substantially below the norm of 8 or 9 months expected on the average for Gray's Oral Reading Test. That the first year gain for Group A and for Group B was only half the average gain in reading skill for first grade children suggests that present plans of teaching reading to disadvantaged children have not solved the problem of slower pacing in these children.

Summary for the ANOVA for the test results of the Wepman Auditory Discrimination Test is given in Table 6, indicating no significant differences among the groups of subjects in the three treatment groups.

TABLE 6
ANALYSIS OF VARIANCE OF THE WEPMAN AUDITORY DISCRIMINATION TEST SCORES

Source of Variance	Sum of Squares SS	Degrees of Freedom df	Mean Squares ms	F ratio F	Comment
TOTAL	1820.34	85	...	...	
Between Groups	30.30	2	15.15	0.7023	Not significant
Within Groups	1790.04	83	21.57	...	

For the Wepman test, the smaller the score (which represents errors), the higher the skill in auditory discrimination. Table 7 shows the distribution of the Wepman scores for each of the three treatment groups, according to standards given in the manual for interpretation.

TABLE 7
DISTRIBUTION OF SCORES AND MEAN SCORES FOR WEPMAN AUDITORY DISCRIMINATION TEST

Classification of Score	Group A		Group B		Group C	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
Errors of 3 or less: Adequate development for 8-year-olds and older	7	23%	11	27%	6	37%
Errors of 4 or 5: Adequate development for 7- and 6-year-olds	8	27%	11	28%	3	19%
Errors of 6 or more: Inadequate development for 6-year-olds	15	50%	18	45%	7	44%
MEAN SCORE	6.33		6.88		5.25	

The slightly lower mean score for Group C seems to indicate a tendency for the Follow Through first year pupils to have a keener sense of auditory discrimination than the two other groups, A and B. (It will be remembered that 13, or 81% of Group C had had ECE experience in preschool.) However, when the errors of 5 or less are grouped as "adequate development" for the subjects at this age, the following proportions are found: Group A, 50%; Group B, 55%; and Group C, 56%, a range of from half to slightly more than half of each group rating adequate development. Using the z-test as the test for significance of a proportion, these values for z were found: Groups A and B, 1.75; Groups A and C, 1.13; and Groups B and C, .83. All of these comparisons were less than the figure of 1.96 required for a proportion of significance at the .05 level. This additional check gives support to the statement that there was no significant difference in the Wepman test scores among the three treatment groups. Neither the early sensorimotor training in preschool nor its combination with a substantial Follow Through majority in the first year can be shown to have brought about an effect of keener auditory discrimination at the end of the first grade, as measured by the Wepman test on this sample of children.

The Wepman manual reports the testing of 80 first graders of a non-urban consolidated school in Illinois, in which 58 pupils, or 73%, showed "adequate auditory discrimination" for their age. When this proportion is tested for significance against 53% (46 pupils of the 86 in the sample tested in this study), the z-value of 4.44 indicates a significant difference in the proportion of adequate auditory discrimination in the total Dayton area group of disadvantaged first graders when compared with the Illinois group. If the latter is accepted as a norm, then, in the entire educationally disadvantaged group tested in this study, there is a smaller proportion of children who have achieved adequate auditory discrimination at the end of the first year than would be expected in their age group at large.

Simply stated, in this longitudinal study, no significant difference was found between children having the training and those without intensified prekindergarten sensorimotor training, when an analysis was made of the results of measuring oral reading and auditory discrimination at the end of the first grade.

While sensorimotor training (or the ECE program of 1967-68 in general) cannot be credited, for educationally disadvantaged pupils, as a prerequisite to greater success in learning to read under the methods of teaching reading used in Dayton in 1969-70, neither does this analysis discredit the sensorimotor program itself which was built to meet the existential physical developmental needs of young children.

The puzzle of the most effective combination of input variables for compensatory education in the early years of childhood education remains, the early childhood program does not remain static, but is constantly being improved according to changes in the insight and perception of early childhood education leaders and teachers. The challenge still exists, however, to produce a longitudinal research design which could lead to "proof" of the significance of early sensorimotor (or other) inputs at the age of 3 or 4 years as having a transfer value in later achievement in basic skills.

A P P E N D I X

SHOWINGS OF FILM: "SENSORIMOTOR TRAINING", 1969-70 SCHOOL YEAR

I. Presentations at Major Conferences and Workshops:

Educational Research Council Workshop, Summer 1970
Columbus, Ohio, Special Education Workshop
Physical Education Workshop, Cortland State University, N. Y.
EKNE Workshop, Wittenberg University, Springfield, Ohio
National AAHPER Convention (Drop-In Center), Seattle, Washington
Perceptual Motor Workshop, NITA Teachers, Chomedey, Quebec, Canada
EPDA Institute, Pikeville College, Pikeville, Kentucky

II. School Systems and Colleges Requesting Film for Clinics and Workshops:

Windsor, Canada
Chomedey, Quebec, Canada
Minneapolis, Minnesota
Waterbury, Vermont
Lawrenceburg, Indiana
Baton Rough, Louisiana
Great Neck, New York
Pontiac, Michigan
Roaring Brook, Cappaqua, N. Y.
West Orange, Texas
Muncie, Indiana
Alameda, California
Howell, Michigan
New Hyde Park, N. Y.

National College of Education, Illinois
Pennsylvania State, Middletown, Pa.
Michigan State University, Lansing, Mich.
Cortland State College, Cortland, N. Y.
East Stroudsburg State College, Pa.
Oregon State University, Corvallis, Ore.
University of Missouri, Columbia
Pikeville College, Kentucky
Washington State College
University of Missouri, Columbia
Lakewood College, Virginia

III. Some Ohio Showings

Most Ohio showings are booked through the State Department of Education Title 1 Office in Columbus which has two prints of the film in circulation. The following showings were arranged through the ECE office in Dayton:

Woodman Pre-School Mothers' Club
St. Christopher Mothers' Club, Vandalia, Ohio
Nursery School Workshop, Dayton
University of Dayton
Carrousel House Pre-School Parents
Miami University, Oxford, Ohio
Centerville Schools Kindergarten Workshop
Troy Home Economics County Extension
Kirkmont Presbyterian Pre-School, Akron, Ohio
Central State University
University of Cincinnati
Ashland, Ohio

SENSORY MOTOR AWARENESS SURVEY FOR 4 AND 5 YEAR OLDS Date of Test_____

Name_____Sex_____Birth_____Center_____

Body Image. ½ point for each correct part; 9 points possible.

_____ 1. Ask the child to touch the following body parts:

head_____	ankles_____	ears_____	stomach_____
toes_____	nose_____	legs_____	chin_____
eyes_____	feet_____	mouth_____	waist_____
wrists____	chest_____	fingers___	shoulders____
back_____	elbows_____		

Space and Directions. ½ point for each correct direction; 5 points possible.

_____ 2. Ask the child to point to the following directions:

front_____ back_____ up_____down_____ beside you_____

Place two blocks on a table about one inch apart. Ask the child to point:

under_____ over_____ to the top_____to the bottom_____ between_____

Balance. Score 2 points if accomplished.

_____ 3. Have the child stand on tiptoes, on both feet, with eyes open for eight seconds.

Balance and Laterality. Score 2 points for each foot; 4 points possible.

_____ 4. Have the child stand on one foot, eyes closed, for 5 seconds. Alternate feet.

Laterality. Score 2 points if the child keeps his feet together and does not lead off with one foot.

_____ 5. Have the child jump forward on two feet.

Rhythm and Neuromuscular Control. Score 2 points for each foot if accomplished six times; 4 points possible.

_____ 6. Have the child hop on one foot. Hop in place.

Rhythm and Neuromuscular control. Score 2 points.

_____ 7. Have the child skip forward. Child must be able to sustain this motion around the room or for approximately 30 feet.

Integration of Right and Left Sides of the Body. Score 2 points if cross patterning is evident, for each.

_____ 8. Have the child creep forward.

_____ 9. Have the child creep backwards.

Eye-Foot Coordination. Score 2 points if done the length of tape or mark.

_____ 10. Use an eight-foot tape or chalk mark on the floor. The child walks in a cross-over step the length of the tape or mark.

Fine Muscle Control. Score 2 points if paper is completely crumpled.
Score 1 point if paper is partially crumpled.
Score 0 points if child needs assistance or changes hands.

_____ 11. Using a half sheet of newspaper, the child picks up the paper with one hand and puts the other hand behind his back. He then attempts to crumple the paper in his hand. He may not use his other hand, the table, or his body for assistance.

Form Perception. Score 1 point for each correct match.

_____ 12. Using a piece of paper with two inch circles, squares and triangles, ask the child to point to two objects that are the same.

Form Perception. Score 1 point if circle is identified correctly.
Score 2 points if the triangle and square are identified correctly.

_____ 13. Ask the child to identify by saying, "Point to the circle."
_____ "Point to the square."
_____ "Point to the triangle."

Hearing Discrimination. Score 1 point if the child taps correctly each time.

_____ 14. Ask the child to turn his back to you. Tap the table with a stick three times. Ask the child to turn around and tap the sticks the same way.

_____ Ask the child to turn his back to you. Tap the table again with the sticks (two quick taps, pause, the two more quick taps.) Have the child turn back to you and tap out the rhythm.

Eye-Hand Coordination. Score one point for each successful completion.

_____ 15. A board is used with three holes in it. The holes are 3/4, 5/8, and 1/2 inches in diameter. The child is asked to put his finger through the holes without touching the sides.

NEW VISIONS

an art museum for children

longfellow school
salem and superior avenues
dayton, ohio

resumé 1970-71

and

summer 1970

new visions is more than a visual experience. it was designed for children and its unique quality is that it approaches awareness of art and the world around through all the senses. it is not intended as an end in itself but as a means of opening doors during the early years.

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CHILDREN FIND EXCITEMENT IN NEW VISIONS MUSEUM

Resumé 1969-70

As a component for the 5th year of Dayton's ESEA Title I project (the Early Childhood Education Program), NEW VISIONS continued to open its doors at Longfellow School as an unique art museum designed for children where they could explore artifacts of our present society and those of past and different cultures, increasing awareness of themselves, their environment, and their heritage.

National recognition has come to NEW VISIONS more than once, the most recent being one of three outstanding art projects in Ohio described in Exemplary Programs in Art Education, a 124-page booklet published by the National Art Education Association.

During the school year 1969-70, tours for prekindergarten classes were scheduled from January 15 through March 6, 1970. Because of less Title I funding for the museum, transportation could only be provided for these prekindergarten classes. However, to make full use of museum activities prior to the ECE visits, tours were scheduled for many other classes, kindergarten through 8, from Title I schools. Because there was also a shortage of available field trips, many classes furnished their own transportation, some coming by public transit and cars, others walking from nearby schools. Many teachers expressed a desire to bring their classes, but could not arrange transportation.

In every phase of the museum experiences, children were encouraged, whatever their age group, to express themselves freely and fully. By the total involvement through the five senses of each child, the docents hoped to create a feeling of self-esteem, drawing out the timid and insecure child by his feeling of oneness with an interesting environment and of rapport with the docents and museum aide.

Response was often obtained from children reluctant to express themselves in class. The open-hearted climate of the museum as directed by the docents set a delicate balance between subtle control and complete freedom. This contributed to the individual's feeling of self-direction. In all museum experiences, the enrichment of vocabulary was constantly emphasized, along with concept development. Age, maturity, and interest level of the group on tour served as guides to the docents in determining the depth of involvement and the length of time spent in the various areas of the museum.

Entrance Area

Preceding each tour, young visitors were introduced to sensory concepts and awareness by objects and pictures displayed on a large colorful bulletin board. In this area, a small art gallery featuring children's art continued to be of interest to visiting classes. This included a few papier maché masks made by sixth graders following their visit to NEW VISIONS.

Ramp Area

Entering the ramp area, children found themselves in a psychedelic atmosphere of contemporary artifacts highlighted by fluorescent media. Incense burned, lights flashed, a mirrored revolving ball cast reflections of colored light upon the surroundings, while sounds of electronic music were audible from an invisible source. Captured by the unique qualities of the display, children were encouraged to use their senses while investigating the artifacts and discovering the materials used in the exhibit. Following the exploration time, while everyone was seated informally on floor cushions, a totally different perspective of the exhibit was achieved by utilizing black fluroescent light to accent the luminosity of the display. The excitement of creating another psychedelic aura was spontaneous, with eager questions from the children about the items that "glowed", or comments on their discoveries about artifacts and techniques.

Next came an American Indian exhibit which consisted of authentic Indian artifacts, interspersed with harmonizing contemporary weaving and ceramics. Authentic Indian recordings provided a related listening background. In small groups, children explored freely, guided by the art docents and their own teachers to think about the artifacts and to "find out" by using their senses. Following the exploration period, museum visitors engaged in a favorite activity of wearing beads, ankle bells, and headdresses, and dancing to a drum beat. Then, while seated in an "Indian circle", children were encouraged to ask questions and discuss items of interest.

The teaching technique used by the docents was not to present an artifact per se, but to lead the children to their own discoveries, and by exploration to experience success. For example, by seeing and feeling, children discovered that the masks were made of wood; by feeling and listening to dry corn husks, that the hair of the Measle Mask was made of cornhusks; by shaking a dried gourd still containing seeds, that this was the source of the medicine man's rattles. The doeskin dress and moccasins led to a discussion of the use of bows and arrows to provide clothing as well as food. With eyes closed, the children become

aware of the differences in sounds of bells, rattles, and drums. Beating the drum led to a discussion of vibration.

Because the Indian exhibit was especially meaningful for the young child, it was used for ECE tours of pre-kindergarten classes. Older children were exposed to experiences pertaining to the relationship between art and the cultures of the past and present, and the functional aspects of artifacts in the life of a people.

Maze Area

On the maze side of the museum, other experiences provided additional concentration on the use of the senses. Again, sitting on floor cushions in a loose semi-circle, children used objects from the ramp side exhibit to demonstrate each sense. A "senses" game was played to stimulate the interest and imagination of the children. During free time, the children had opportunity to further explore the interesting items of the maze area, using as many senses as possible.

A puppet show culminated the visit for young children. A puppet representing a child of the culture featured on the ramp side of the museum introduced his animal friends who reviewed the experiences of using senses, the "talk" of the puppets bringing the children themselves into the conversation. Thus, each museum tour had its own satisfying, happy ending.

Staff for NEW VISIONS

Since the NEW VISIONS Museum operated as an auxiliary unit of the Early Childhood Education Program, the ECE coordinator had a direct responsibility for the program. Although not actually on the NEW VISIONS staff, the art supervisor of the Dayton Public Schools served as director for this project, being responsible for all purchases and for successful operation of the museum. She was available for consultation when necessary and prepared the article for the book, Exemplary Programs in Art Education.

In direct contact with the museum explorers and all other visitors were the two docents who shared the responsibility for planning and executing the program of NEW VISIONS, and, with the aide, maintenance of the museum.

Organization of the Program

The following features remained the same as in the preceding year:

1) NEW VISIONS was operated under the ECE Program, financed through funds from ESEA Title I.

2) Location: Longfellow School, 245 Salem Avenue, Dayton, Ohio 45406.

3) Physical facilities of basement rooms were made inviting and exciting.

4) Assembled artifacts of different cultures were exhibited.

Two aspects of the program were changed for 1969-70:

1) The Early Childhood Education Program paid for one trip only for prekindergarten children.

2) The ECE budget did not cover transportation for kindergarten children.

Visitors for Near and Far

Art education students from several universities came in groups to observe children's reactions on museum tours. Other students also visited, as did teachers from the Dayton Metropolitan Area and from other states. A color feature appeared in the Dayton Daily News, sparking further community interest.

A comparison of the services offered to students and teachers over the last three years is given in Table 1 below, with notes as to changing conditions from year to year.

TABLE 1
COMPARISON OF NUMBER OF TOURS AND NUMBER OF VISITORS TO NEW VISIONS MUSEUM OVER A THREE-YEAR PERIOD, 1967 to 1970

School Year	Number of Visitors	Number of Tours	Extent of ECE Financing of Tours By Number of Visits Per Center		Other Notes
			Prekindergarten	Kindergarten	
1967-68	7,384	266	1 (Sometimes 2)	2	Included tours for ECE parents & for Living Arts
1968-69	6,127	252	1	1	Included tours for ECE parents
1969-70	5,558	225	1	NONE	No tours for ECE parents

The lack of field trips, or funds for transporting students, seems to account for the approximately 500 less visitors in 1969-70 than in the preceding year.

Also, class sizes seem, generally, to be smaller. Although there is a difference of only 14 tours between 1967-68 and 1969-70, the difference in total number of visitors was 1,357. (See Tables 2, 3, and 4, for summaries of 1969-70 visitors.)

There still seems to be a great number of teachers in target area schools not aware that NEW VISIONS is available to primary grades and to other elementary grades by scheduling a tour. Many ECE personnel are not aware that the museum serves other children than the ECE classes. Actually, the museum is for all grade levels of Title I schools, a fact that did not rise above the communications gap, even though bulletins were sent to schools for posting.

In the opinion of the docents, grade levels PreK through 5 seem to derive the most benefit from museum experiences, although evaluations from teachers

TABLE 2

SUMMARY OF VISITORS TO NEW VISIONS MUSEUM, GROUPS AND TOURS, 1969-1970

Number	Type of group	School or Institution	Time of visit	Purpose
69 classes	Kindergarten to 8, plus special education	Dayton Public Schools	September to Jan. 15	Museum experiences.
57 classes	Prekindergarten	Early Childhood Education Program, Dayton	Jan. 15 to March 6	Museum experiences.
80 classes	K--5, plus some special education	Dayton Public Schools	March 6 to June	Museum experiences
4 visitors	New art teachers and assistant supervisor	Dayton Public Schools	October	Orientation meeting.
1 class of 30 students	Art education students	Miami University	October	Tour of museum.
40 students	High school: first year art students	Colonel White H.S. (Grades 9 to 11)	November	
8 classes	Deaf children	Kennedy School, Dayton	November	Museum experiences.
70 teachers	Elementary art and other elementary T.	Western Ohio Education Association	WOEA Day, October	2 tours of museum.
2 visitors	Reporter and photographer	Dayton Daily News	December	Feature story
5 visitors	Committee	Dayton Tire & Rubber Co.	December	
14 students	Sociology class	Miami University	March	Observation.
10 students	College students	Sinclair College	April	Observation of small children.
2 classes of 40 each	Art education students	Wright State University	April, May	Small group observation of museum tours
10 visitors	Board members	Longfellow Advisory Bd.		Observation

TABLE 3

INDIVIDUAL VISITORS WHO CAME TO NEW VISIONS MUSEUM WITH A HIGH DEGREE OF PROFESSIONAL INTEREST IN ART EDUCATION
1969-1970

Name	Position	School, Institution, or City	Time of Visit	Special Interest
Wendell Dobyns	Supervisor of Art	Fairborn Schools	October	
	Coordinators of Language Development and Teachers (4)	Columbus Public Schools	January	Study of museum plan and activities.
Richard Hunt	Sculptor	Chicago, Illinois	February	
Carl Evans Bartlett Lubbers	ESEA Title I Supervisor Associate Director	State Dept. of Education Special Assistance Programs	February "	Observation and evaluation. Guide to Mr. Evans.
Sr. Ethel Corne Isabelle deLagarza Alice Humdere	Committee of 3	San Antonio, Texas	February	Planning program of art, drama, and music to submit as federal program.
R. Green	Humanities Specialist	Dardannelle, Arkansas	March	Planning federal program.
Ruth Green	Staff member	Children's Museum Boston, Massachusetts	April	
	Art teachers (2)	Cincinnati Public Schools	April	Study of museum plan and Activities.
	Art teacher	Salsburg, Austria	May	
Vija Vetra Chao Li Chi	Artist-in-residence Dance director	Living Arts Center, Dayton " " " "	May "	

TABLE 4

VISITATION OF NEW VISIONS BY NUMBER OF CLASSES AND OF PARTICIPANTS FROM DAYTON CITY SCHOOLS AND OTHER VISITORS

Mo.	Schools Participating	Classes by Level										TOTAL CLASSES	Types of Visitors			TOTAL VISITORS
		Sp	Un	PK	K	1 2 3		4 5 6		7 8	HS C/U		Children and Students	Teachers	Others	
S	Jackson Primary Longfellow Drexel Highview Res.Park Pri.*				4 3							7	176	11	11	198
O	Edison Longfellow Wright State* Franklin MacFarlane Greene Wogaman	2		2	4*	4 5 5		1 2		4 2	1*	32	782	114	20	916
N	Drexel Longfellow Westwood Franklin McGuffey Kennedy* Huffman McNary Col.White			1*	6 2*	7 1 2		4			2	25	612	38	11	661
D	Edison Irving Longfellow McNary	2			6			1 4 4		1		18	448	31	16	495
J	Addams Drexel Emerson Greene Edison Gardendale Highview			18	4							22	281	45	11	337
F	Huffman McGuffey Washington Irving McNary Weaver Jack.Pri. Ruskin Westwood MacFarlane			30				1				31	451	65	26	542
M	Edison Troy Belle Irving Haven* Longfellow Whittier Cleveland* MacFarlane Wogaman Miami U.* Shawen Acres			21				1*			1*	25	540	49	31	620
A	Drexel Brown Res.Park El.* Edison Jefferson Pri. Longfellow Kemp* Van Cleve* Ruskin Kennedy* Sinclair* Wogaman Lincoln* Wright State*	1 3*	1 0*		10 4*	1 2 3*	1*	1* 1*	1*		2*	26	866	60	39	965
M	Edison Brown* Hillel Acad.* Longfellow Grant* Wright State* Ruskin Jefferson Pri.* Westwood Res.Park El.* Allen* Webster*	1*	3*	1*	3 3*	4 2 1*	3*	3		3	1*	29	737	39	48	824
	1969-1970 TOTAL	9	13	73	42	52		23		9	2 5	215	4,893	452	213	5,558

* Outside TITLE I Target Area

Sp: Special Ed. Un: Ungraded PK: Prekindergarten C/U: College/University

in upper levels (6th through first year art in high school) are exceptionally good. A few non-Title I schools did participate in 1969-70. After observing the responses of the children, studying teacher evaluations, and talking with teachers, it is obvious that the museum experience is very meaningful to all children, regardless of economic background. All groups expressed a desire to return, many requesting that the staff reserve them a tour time for 1970-71, if possible.

Many non-Title I schools, advised as to open times, were not able to take the field trip due to full use of their field trip allotments. Some principals even extended a field trip not scheduled or arranged for other transportation. Many regretted that the invitation came so late in the year.

Other Problems

Some teachers have commented on the short time spent at the museum during a tour. The NEW VISIONS staff prefers to have the visits last at least one hour and a half, but the difficulty has been the bus scheduling. The following concurrence has been worked out with the division that handles field trips:

> A field trip of one and one-half hours could be arranged in the AM by scheduling a double trip, with buses picking up the first group by 9 AM, arriving at the museum between 9:15 and 9:30, then going for the second group and bringing them to the museum between 10:45 and 11 AM. This would insure an adequate amount of time at the museum for both morning groups.
>
> To insure a longer museum visit in the PM, the afternoon buses should leave the school promptly at 12:30 PM, because buses must pick up children to return from the museum no later than 2 PM. In 1969-70, many afternoon tour groups did not arrive at the museum until 1 PM, or later, because of a late start at the home school. Teachers or principals can set the earlier starting time for the PM.

Some teachers also remarked on the coldness of the museum quarters, a factor that is also beyond staff control. During the winter months, the staff often worked in coats, jackets, and, always, sweaters. Children who are not dressed warmly enough feel the cold radiation from the floor on bare arms and legs.

Evaluations by Classroom Teachers Who Brought Students to the Museum

Comments from classroom teachers recognized the unusual experiences offered by the museum, the teaching skill of the docents in promoting discovery, and ways in which students were interested and motivated by the activities:

"An excellent experience! I feel that this is the most valuable of all field trips offered. Children freely express themselves and retain things told to them at the museum from one year to another."

"The greatest part of the museum is that they were invited to touch the objects. This is a delightful rarity."

"I will try to use all of the ideas as they would be helpful. The idea of encouraging each child to be aware of his five senses lets him have a positive image of his worth. Each child was free to enjoy the exhibit to the fullest."

"Each year the program has become more interesting and geared more to the age of these (four-year-old) children."

"I think the museum is excellent for children and, of all possible field trips for the primary grades, it is the best and most meaningful."

"I feel that NEW VISIONS was definitely constructed to meet the needs of all elementary children."

"I was very impressed by this tour. The students were completely enthralled with one new experience after another. This exhibit was exceptionally good for these 1969-70 kids (8th grade students). They find it easy to relate to these things which are happening now."

"Very good for high school."

"I have seen several groups go through the museum and I have always thought the program was well-geared to the age level. The children were attentive and I am sure it was a very meaningful experience."

"This is an experience every child should have."

"Every time I bring my class to the museum we all have a marvelous time. The children are provided an opportunity to say just what they think. All questions are answered."

"Superb, as usual."

"Very enjoyable. The children and I find all your sensory experiences worthwhile, unique, and worth sharing with you, as they are so different from our daily opportunities."

"I feel this visit was an excellent experience for both children and teachers. Everyone's interest was held during the entire visit. I hope we can always have access to this museum for many, many years."

"I think it is one of the most exciting places for children in Dayton. The museum was great."

"I feel the program was presented very effectively. Real live experiences do more in five minutes than one hour of pictures, talk, etc. Very good!"

"I was interested before I brought my class of Special Education children as to how they would react to the stimulation of color and lighting. In spite of what the experts say, I think it was obvious that, though many of the children are emotionally over-wrought and brain-injured, they reacted only as normally interested children. This is, in large measure, due to the expert, low-key presentation."

"I found this to be very, very good for my classes of deaf children."

"No matter what other services have to be cut--KEEP NEW VISIONS!! We wish we could come two or three times a year. NEW VISIONS does so much to arouse interest, curiosity, and desire to learn."

"I thought it was great. It brought out many opportunities for oral and original expression of children's thoughts."

"Actually, I was overwhelmed with the program. Not only did the docents cover and show things that were meaningful, but the attitudes that the docents developed, I am sure, will help teaching techniques."

"Very meaningful to children. The docents related to their world beautifully. It was delightful to me. The hospitality to visitors, and firmness when needed, was warm and friendly. Sensory approach gives the most relaxed and memorable experience and releases the children's natural responses, making it easier to lead to art work and self-concept builders in the classroom. The exhibits themselves were well chosen and artistically arranged. The docents really covered a lot of ground rhythms, clothes, food--and especially our five senses."

Children's Letters and Comments

The teachers' written comments were substantiated by the warm, friendly notes received from child visitors. The following are representative:

"I liked the games of hearing, smelling, tasting, eyes, and hands."

"I liked every thing you had at NEW VISIONS. I hope I will be able to come again."

"When we came on Wed. 6th, 1970, I liked to explore. It was fun and I had a good time."

"Could we come back everyday?"

"I wish I could come here and live."

"Are you open on Saturdays? I want to bring my mother."

"This is a sensory museum." (Second grader)

"I was happy when you didn't get mad at me when I dropped the mask last year."

"Indians sure were smart."

"I enjoyed NEW VISIONS. I just loved the whole thing. I liked wearing the Indian beads, too."

"I enjoyed the exploring in the Indian room, and I liked exploring in the toy room, and to put it one way, I liked everything. Thank you!"

"I liked the puppet show very much. We learned new and interesting things. We learned to use our five senses. Thank you for the candy. We hope you enjoyed us coming."

Appalachian or Southern Highlands Exhibit

"I want to thank you for a lovely time. I hope we can come back and stay all day."

"I just want to say what a good time I had. And I hope I can come to NEW VISIONS again before school is over. Longfellow is the luckiest school to have such nice ladies as you to tour classes through NEW VISIONS."

Recommendations for the School Year 1970-1971

1) All walls in the museum area and coatroom entry are in need of paint. Outside walls need to be brushed and sealed before painting.

2) Adequate lighting is needed in the coatroom entry.

3) Acoustical floor covering is needed to help control coldness of floor during winter months.

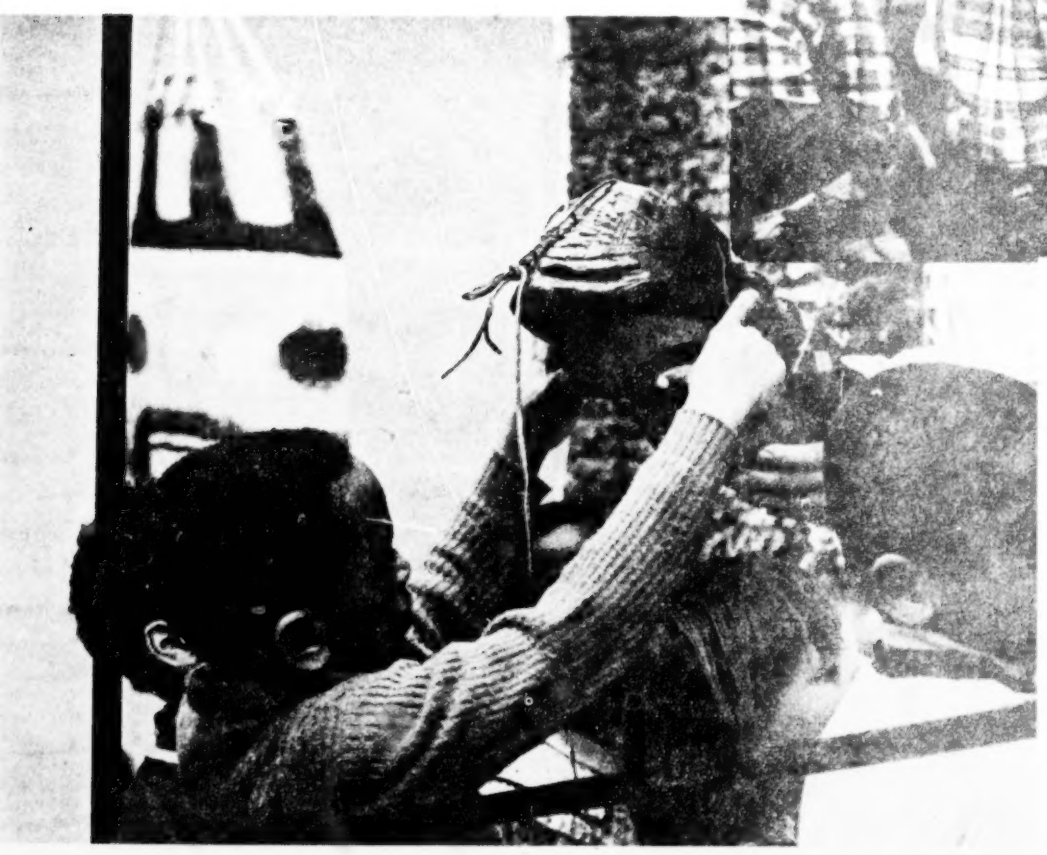
4) Permanent covering for the inside of the windows would improve the appearance of the museum.

5) A dehumidifier is badly needed to help control moisture during the summer months.

6) The stairwell drain in the outside entrance needs attention.

General Evaluation

While the docents continue to experiment, the NEW VISIONS Museum as a valuable learning resource is no longer considered experimental, as far as motivation of Dayton school children is concerned. It has proved itself to be stimulating, from the very youngest to the most sophisticated adult visitor. With great realism and understanding, NEW VISIONS ties the past with the present, opening the eyes and hearts of its visitors to both.



NEW VISIONS . . .

New experiences . . .

New growth!

CHILDREN GLIMPSE AFRICAN CULTURE

Resumé -- Summer 1970

For 32 days from June 11 to July 24, 1970, NEW VISIONS was open as an art museum, arranging for children's tours for the summer Early Childhood Education Program and for summer HEADSTART. The display of authentic artifacts from Africa in combination with contemporary items emphasizing use of natural materials was financed as a component of the ECE Program, an ESEA TITLE I Program. (See Table 5.)

The first week was used for arranging the museum for the African exhibit, while the last week was used for evaluation, reorganization, and maintaining the physical condition of the museum. In the intervening period, two or three tours were scheduled per day, except when HEADSTART groups were included. Seven afternoons were scheduled for an art activities program when children came by choice with older brothers and sisters or with parents. During the summer, the museum served a total of 34 tours, 597 children, and 178 adults.

Summer Staff and Program Organization

Two docents, art teachers in the Dayton City Schools, organized the daily schedules, purchased needed materials for the museum, maintained the display, served as tour guides, and directed the afternoon art activities. Assisting with the tours and displays was a museum aide who was a college sophomore majoring in art education.

Tours with children began at 9 AM, 10:15 AM, and 1:15 PM, the ECE and HEADSTART groups being accompanied by their teachers. Each tour lasted approximately one hour and fifteen minutes. Transportation for the classes was paid for by the program.

Entrance Area

Coming down the back stairs into the museum, the children assembled for a brief introduction to the use of the five senses. Drawings depicting the five senses motivated the children's imagination and aided in their exploration of the artifacts found in the museum.

Ramp Side

Along the ramp were exhibited authentic artifacts from Africa for the summer exhibit. After exploring the objects of the exhibit using their five senses, the children sat on floor cushions for a discussion of the artifacts. Evolving from this discussion was a "tribal ceremony", with one of the children being a chief dressed in African costume and other children playing authentic African instruments and dancing.

Some of the concepts conveyed by the docents to the children were that Africa is a large continent with many kinds of people and cultures; that Africans utilized materials of their environment, such as wood, straw, and animal skins; and that the artifacts were symbolic of their rituals and cultural beliefs.

Maze Side

As in the school year program, the maze side of the museum re-emphasized the use of the five senses by challenging individual children to recognize familiar smells, sounds, sights, tastes, and touch. Then the children were free to explore either side of the museum, with the docents answering questions and stimulating each child's involvement.

In the puppet show which climaxed the tour, the concept of Africa as a big continent with contrasting cultures was talked about by the puppets who "talked about" the artifacts they were discovering and included the children in their conversation. When time permitted, children entered the mirrored cube, and experienced themselves in amazing replications.

TABLE 5

ARTIFACTS ON DISPLAY IN AFRICAN EXHIBIT FOR SUMMER TOURS OF EARLY CHILDHOOD EDUCATION AND HEADSTART, 1970

AFRICAN ITEMS

1. Kihembe Ngoma Drum, 2 drumsticks
2. Kihembe Ngoma zebra skin drum
3. Kissar
4. Thumb pianos (3)
5. African metal bells
6. Double gong gankoqui
7. Ethiopian cross (3): 1 wood, 2 metal
8. Senufo loom -- Mali West Africa
9. Sudan blanket
10. African mask
11. Carved boar tusk
12. Slave bracelet
13. Money exchange
14. Wood Bakuba bowl from the Congo
15. Benin bronze mask
16. Metal box
17. Benin bronze mask
18. Bamoun mask
19. Ngulu mask (pig)
20. African wood carvings (commercial piedes): Rhino (2), mother and child, elephant, man on bike, turtle--from Robert Amos' collection
21. Kenti cloth
22. Berber cloth
23. Bakaba box from Mali
24. Fetish bell
25. Adinkira cloth (Ashanti)
26. Adz (sculpture tool) -- Ghana
27. Drum (small, flat) -- Kenya
28. Drum (small, tall) -- Kenya
29. Ethopian metal rattle
30. Guro mask
31. Wooden bells
32. Leather string bag
33. Benin bronze cast figure from Nigeria
34. Baolule head stool -- Ghana
35. Gold dust box
36. Adinkira stamp
37. Spear (2)
38. Ashanti fertility doll
39. Wooden bird
40. Spoon
41. Door lock
42. Yoruba Nigerian mask
43. Comb
44. Ndondo mask
45. Commercial pieces (4): 2 heads, man, man on bike
46. Loom
47. Jewelry: 3 bracelets
48. Raffia costumes
49. Shield -- New Guinea
50. Walking cane used by storyteller
51. Small commercial carvings

MISCELLANEOUS ITEMS USED IN EXHIBIT

1. Mask from New Guinea
2. Hanging from Martha Bain's office
3. Rabbit skin
4. Sheepskin
5. Black and white stenciled batik
6. Print of an African mask
7. Ceramic pots
8. Red material for draping
9. Dry weeds
10. Black, white, ocher painting
11. Yarn wall hanging
12. Colored burlap to cover boxes for displays
13. Assorted sizes of cork for displaying
14. Metal bell
15. Colored construction paper: yellow, brown, black, orange
16. Raffia for displaying

Afternoon Art Activities

Children in the immediate area of the museum participated in the afternoon art activities which included two types of projects: 1) dyeing fabric as the Africans did, and 2) creating jewelry from natural materials such as seeds, leather, reed, cork, feathers, and wood. Children were encouraged to wear their actual creations.

Recommendations For Physical Facilities

1) Museum walls and ramp are in need of repainting.

2) The ramp side needs permanent wiring.

3) The outside awning over the entrance needs to be repaired.

4) The entrance way of the backroom should be painted white like the rest of the museum.

5) Water facilities in back room should be available to aid in maintaining the museum and the art program.

6) A new outside sign, "NEW VISIONS", is needed.

Recommendations for Program

1) Because of limited response to the afternoon art program, it is suggested that the afternoon program be cancelled and that the morning sessions be extended through August, thus providing more opportunity for additional federally assisted programs to tour the museum.

2) The evaluation form given to teachers needs to be revised.

3) Because of the limited capacity of the museum, we suggest that all tours consist of one teacher or aide per ten children.

4) If the program were extended throughout the summer, groups could possibly attend two sessions, the first one being a tour and the second an art experience.

5) During ECE and HEADSTART orientation meetings, a docent or supervisor should explain the goals and the purpose of the current exhibit.

Notes From ECE, HEADSTART, and Summer School Teachers' Evaluations

"The staff is 'child oriented' and made this a pleasant experience for everyone."

"It is an experience well worth continuing, so that many children may learn and see what the African culture is like, and also see how many people from a different culture and land live."

"The changing theme and scenery create a delightful atmosphere--keep it going."

A P P E N D I X

RECENT PUBLICITY AND NATIONAL RECOGNITION

For

NEW VISIONS -- An Art Museum for Children
(Developed as a Component of Dayton ECE
and Funded by ESEA TITLE I)

1. "A Child's Museum of the Senses", Grade Teacher, May/June 1967, p. 106. An illustrated story of NEW VISIONS in a professional magazine for elementary teachers, with a NV picture providing the cover photo.

2. Third Annual Yearbook: 1967 Grade Teacher, page 40. 23 Leroy Avenue, Darien, Connecticut, 06870. Reprint of above article.

3. Summer Enrichment Programs, Educational Research Circular No. 2, 1968. Research Division of National Education Association and the American Association of School Administrators, February 1968, page 5. A full-page description of NEW VISIONS as it operated during the summer as a component of SPEAR (Summer Program for Educational Advancement and Readjustment), ESEA TITLE I.

4. "Museums and the Schools", Today's Schools, National Education Association, 1201 16th Street, N.W., Washington, D.C. 20036. December, 1968, page 14.

5. Exemplary Programs in Art Education, National Art Education Association, 1201 16th Street, N.W., Washington, D.C. 20036. May 1969, pages 84-85. The description of NEW VISIONS as an art museum for children is one of 39 innovative approaches to art education chosen from all over the country.

6. "To See--To Touch--Is Also To Learn" by Donnie Smith, Dayton Daily News, February 6, 1970, page 35. An illustrated feature story by a staff writer.

7. ERIC SYSTEM: Early Childhood Education Program, Psychological Evaluation, Sensorimotor Skills Program, and New Visions--A children's Museum. Project Reports, Volume 4, Book 1, 1969. This Dayton Resumé was accepted by the ERIC Center for Early Childhood Education, College of Education, University of Illinois in 1970 for inclusion in the EDUCATIONAL RESEARCH INFORMATION SERVICE.

8. Information Retrieval System Index for Educational Practices and Programs, Spring 1970, page 77. Wisconsin Department of Public Education, 126 Langdon Street, Madison, Wisconsin 53702.

Virginia sponsors a state museum, and its programs support and combine with the state colleges and universities, the state department of instruction, and the local schools to create an environment where art, for many, is an integral part of living.

No longer can the initiative for cultural activity be left to the whims of an impassive majority. The School-Museum project serves as a pilot program exemplifying the combined efforts of many diverse institutions: the federal government (Title III, ESEA), the Wichita Art Museum, Wichita State University, thirteen participating school districts, the Kansas Cultural Arts Commission, several Kansas industrial concerns, and a variety of local civic groups.

The most important deviation from the past and the significant implication for future change lies in the recognition of a new responsibility for initiative in the arts by the established institutions, and the implementation of programs utilizing the strength of combined resources toward a common goal.

FOOTNOTES

1. Portland Art Museum, Portland, Oregon, *A Course in Understanding of Art*, Prepared for the Portland Public Schools under a grant from the Fund for Education by Portland Art Museum, S.W. Park and Madison, Portland 5, Oregon.
2. Mini-Exhibits:
   - 1-1 Kansas Artists Exhibit. Prepared by the Title III School-Museum Project.
   - 1-2 Children's Art Exhibit. Prepared by the Title III School-Museum Project.
   - 1-3 High School Art Exhibit. Prepared by the Title III School-Museum Project.
   - 1-4 National Gallery Art Exhibit. Prepared by the Smithsonian Institution, Washington, D. C.
   - 1-5 Art Appreciation Print Program. Prepared by Art Education, Inc., Blauvelt, New York 10913.

BY MARTHA BAINS (DAYTON PUBLIC SCHOOLS, DAYTON, OHIO). New Visions, an art museum for children, is more than a visual experience. Designed especially for children, its unique quality is its approach to awareness of art and the world through all the senses. It is not intended as an end in itself, but as a means of opening doors during the child's early years.

The approach to the very young child's world of learning is quite different from that needed for older children. It must involve not only the "sight" of art but the "touch" of art as well; it must somehow captivate the child's entire being. Children use their senses as they grow, but most frequently they do so without thought or meaning, awareness or association. Older children, too, could benefit from more sensory experiences. In the planning of the museum, it was important to establish an atmosphere which would stimulate curiosity and a desire to explore.

It is increasingly apparent that children from areas of low economic and cultural backgrounds have very few present opportunities or past experiences with which to relate in the development of aesthetic awareness. Although there are some limited opportunities and facilities available in the Dayton area, it seemed imperative that there be some additional facilities to serve those in most need.

Planned learning activities for young children needed to be provided by which they could explore art and their world through the five senses. A variety of art objects, not only of our present society, but past cultures as well, would create for children an atmosphere for developing awareness of themselves and others.

Presented with this challenge, the Dayton City Schools, with the help of federal funds through the Elementary and Secondary Education Act, believe we have found a unique approach to art education, beginning with the preschool age child and continuing through the eighth-grade level.

New Visions, a permanent art museum, became a reality in the summer of 1966. It is located in a central geographic position, favorable for easy access to youngsters from designated areas of deprivation.

The displays are based on our present understanding of child interest, personal growth and development, and subject matter areas most readily correlated with art.

Selections of art have been made from the country's leading art galleries, local art sources, and companies producing toys which stir the imagination of children. All art objects were selected because of their high quality and appropriateness to the understanding of young children.

The atmosphere of the museum is young. An arrangement of colorful panels gives direction to the children as they explore different ways to use their senses. A ramp

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* Stanley Madeja (ed.), Exemplary Programs In Art Education. Washington, D.C.: The National Art Education Association, May 1969.

serves as a display area for two-dimensional art work and at the same time provides a different perspective to art objects displayed below the elevation of the ramp. Exhibitions of the art of other cultures are displayed along with art of the present day, so that youngsters can increase their understanding of the relationships that exist between contemporary and past art.

A tour to New Visions is not merely a visual experience. The very nature of the atmosphere prompts participants to have personal contact with all artifacts. They can observe how the art objects work by actually operating them; they understand how they were used, because they use them; and they become aware of the problems people encountered, because they have participated in the manipulation.

The museum exhibits have an immediate impact on the child, and he is soon aware that this place is for him—a place where he can create sounds in many different ways; look at the world of the museum not only through his own eyes, but with color paddles and magnifying glasses; handle all the art objects, even "try some on"; detect their differences through the sense of smell; and discover that some tastes are more pleasant than others.

Tours to the museum are arranged for children as their classroom work suggests such correlation or as the need for enriching experiences becomes apparent.

For an hour children are exposed to a world of wonder, which creates a desire to explore the many things that make New Visions an exciting and satisfying experience. Each experiment with an art object contributes to the learning process and provides specific growth as it meets the needs of the individual child. Youngsters are free to explore any or all art objects which appeal to them. There are no "Do Not Touch" signs.

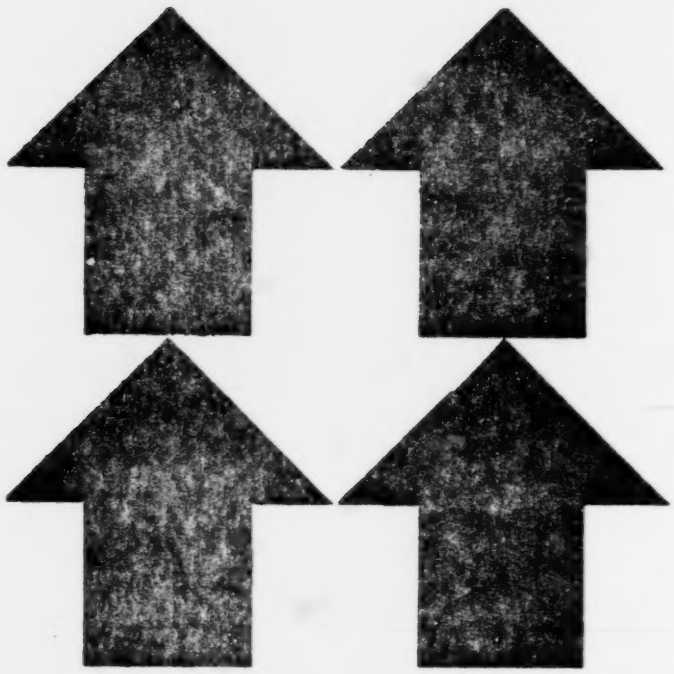
Essential also to the museum are the docents (presently there are two), who conduct the tours. They must have empathy with children and at the same time possess a knowledge of art and its importance for growth. Without the sensitive guidance of the docents, the museum would be meaningless. Most children establish immediate rapport with the docents and the museum, but it requires a rare person to immediately detect the shy child—the child who is afraid of participating, and the child who is unobserving. These are the ones who need a more personal kind of motivation. Through questions posed by the youngsters and the answers to the questions raised by the docents, the degree of understanding of the meaningfulness of art becomes apparent. There are no failures at the museum, because each child is respected as an individual.

Frequently, as art educators, we place our emphasis on visual art expression. At New Visions, children are free to express their ideas, thinking, and emotions in many other ways—the dance, music, and drama—or perhaps merely by holding an artifact without any obvious outward response. The whole child is our concern, and one emotional experience may overlap another until the whole child is involved.

The response to teachers was gratifying as they became cognizant that some of these activities could be related to classroom experiences. In an evaluation, continuous since the conception of the museum, 98% of the teachers indicated that there was a real need for this project in our total school program. Art educators, who observed the children's participation, were enthusiastic about this approach to art education. Visitors from other areas of the United States and foreign countries left with visual and mental pictures of the possibilities of such a project. It is satisfying to know that activities within the museum for children from preschool through eighth grade will extend beyond the doors of New Visions.

In these early encounters at the museum, children have had opportunities to improve their understanding of themselves, to develop a sensitivity to beauty, and to discover the meaningful aspects of art of their culture and other cultures. We expect enrichment of their future interests and performances in the field of art education.

NEW PUBLICATION! WRITE IN ON THE ENCLOSED PUBLICATIONS LIST ORDER FORM!



Exemplary Programs in Art Education

is a new publication of The National Art Education Association. The 128-page book, edited by Stanley S. Madeja, contains detailed descriptions of 39 exemplary programs in art education from across the United States, including innovative approaches in such areas as scheduling, art appreciation, interdisciplinary programs, special strategies, utilization of community resources, and instructional media. Each of the 39 articles includes a brief description of the educational setting for the program, the aims of the project, details of its implementation, and a summary of its results and its value for future development. Among the various innovations described are Saturday centers; art museums designed for children; programs in art for inner-city children, rural communities, and disadvantaged youth; mobile galleries; modular scheduling and team teaching in related arts programs; art media centers; and humanities programs. From a large number of submitted articles descriptive of innovative programs, these 39 were selected as examples of some of the most successful programs put into effect in recent months. The publication includes a list of references to projects which were not included because of space limitations. The publication gives an insight into the most recent developments in art education and provides much practical information regarding the establishing of these exemplary approaches. All NAEA comprehensive members will receive a copy of the publication free of charge. Others may order the book for $2.00 from: The National Art Education Association, 1201 Sixteenth Street, N.W., Washington, D.C. 20036.

'Through the senses, everyone can have new visions.'

'A NEW INSIGHT INTO EVERYTHING IN THE WORLD' IS PROVIDED
And Robert Wise Seems to Enjoy His Visit to Longfellow School

'A room of a thousand you's.'

To See, To Touch Is Also To Learn

By DONNIE SMITH
Daily News Staff Writer

Incense burns.

Electronic computer music gives a pulse to all air except that breathed. And maybe that, too.

In the semi-darkness shiny balls shake, with no visible means of support. Colorful w h e e l s rotate. Barber-pole-striped tubes seem to hang in midair. A nudge sets them to winding and unwinding, with never an unraveling.

Irregularly stacked bricks, growing "hot" with fluorescence, appear to reach out. They beg to be touched. So do large plastic cubes, raised here and there with giant dots. And sculptures. And other-dimensional art.

The children are aware. Aware of everything except that they're in school. And that the idea is to make them aware that they're aware. It was planned that way.

Suddenly all five of their senses stand out like antenna. Their whole bodies are alive. And learning.

AND WHEN THE BLACK light goes out, and regular artificial light kills the glowing vibrant colors, students visiting this art museum for children at Longfellow school learn just how much they've been learning.

With no instruction. Just using their senses. Like they could everyday. Everywhere. With a little self-training.

Through the senses, everyone — not just children — can have new visions. That's why the museum was named New Visions when it was set up in 1965 by Miss Martha Bains, art supervisor for Dayton public schools.

For years she had realized a need for young children to explore and learn through use of the five senses. She felt it would improve the self-concept of the children and could upgrade their thinking and appreciation of art at the same time. So she began to plan.

HER DREAM was turned into a reality by federal funds granted under Title I. The museum was then set up in two sections. One features exhibits following a selected theme, such as the psychedelic one which had been featured this fall. The theme in this section is changed three or four times each year. The other section is known as the sensory section and remains the same. It is geared more for younger children, for even pre-kindergartners atten dthe museum.

But both sections are sensory and both are geared to children. Miss Bains says, "Most museums are 'look and not touch' and articles are too high for the children to see. This museum is geared to children, with both usual and professional art work on display."

The exhibit section of the museum features a ramp along which art objects are hung at child level. From the ramp, the children can look down at scattered art pieces, which seem to gain additional dimension from various vantage points.

TOURS INCLUDE BOTH sections of the museum and last about an hour. They are directed by two tour guides called docents. They are Mrs. Richard (Jean) Powell and Miss Paula Ramey. They work full-time at the museum, not only in giving subtle direction to the visiting children in the use of their senses, but in helping director Miss Bains in planning and implementing.

"Unless we have good docents, the museum could be nothing. The children do need guidance," Miss Bains says. "If they do not understand art, they must understand children. The children will find the art."

Happily, the docents understand both. Playing it by ear to meet the needs of d i f f e r e n t children effortlessly leads the youngsters into what Miss Bains calls "a new insight into everything in the world."

THEY HAVE A myriad of art props to help them. There are artifacts from various cultures, and they are presented against appropriate background music. There are native costumes for the children to dress in, and native musical instruments for their experimentation.

Psychedelic glasses multiply whatever the wearer sees. There are kaleidoscopes, magnifying glasses, xylophones, puppets used in correlated shows and just to permit experimentation, large foam rubber shapes, and colored plastic rectangles which can be overlapped to produce new colors.

One of the most popular items is a three way mirror. Through it, some children get actual proof for the first time that they do have backsides. The most recent acquisition is an eight foot cube which is entered by a door and is covered completely inside with mirrors which reflect various colored lights, as well as the children who enter and

Daily News Photo by Charles Steinbrunner

YOUNG JEFF DAVIS GLORIES IN THE COLOR FUL ASPECTS OF MARTHA BAINS' MUSEUM
He Takes a Filtered View of the World Around Him as He Roams Room

DAYTON DAILY NEWS
Women's World
Friday
February 6, 1970
Page 35

wonder. One of the children named it "a room of a thousand you's."

There are all sorts of things to give ears a workout — even unlikely things such as crumpled tissue paper which children may not be able to identify any better than as "paper like shoes come in."

FOR THE TASTEBUDS there are bits of lemon and crackers and gum drops, as well as marshmallows and peanut butter and grains of sugar and salt. There's perfume and vanilla and other goodies to smell.

To test the fingers there are wooden boxes with holes just large enough for little hands to reach inside and identify objects by feel.

Time in the museum for the children is divided into two portions. The first is exploratory, when the children roam freely and touch and manipulate the artifacts. The second is when they discuss, with the children taking the initiative and telling what interested them most, the docents leading into discussions about how the children used their senses for the fullest enjoyment.

THE MAIN PROBLEM about the museum is that only children who attend Title I-designated schools are eligible to attend. That's good to the extent that these schools are designated to reach culturally and educationally disadvantaged children. But all children — in fact, adults — can benefit from such a project as this.

There are six exhibit themes which are alternated. In addition to the psychedelic exhibit, there are ones on the American Indian, Appalachia, Africa, the Orient, and contemporary art.

Now on display is the Indian exhibit.

ONE OF THE AIMS of the museum is to personally reach every child and bring out the more shy ones. Mrs. Powell tells that a classroom teacher heard one of her students "talk" for the first time when the child became enthralled with what was happening at the museum.

She says the most satisfying moment of her life came when a group of children was discussing the Appalachian exhibit. She pinpointed Appalachia in the Kentucky and Tennessee area, and suddenly saw a previously dejected looking lad come to life before her eyes.

"I'se a hillbilly. That's where I come from," he cried.

The exhibit shows good things from the Appalachian culture, and helps dispel insecurities about heritage. Mrs. Powell says it was the first time the little boy felt good about where he came from. "Or about himself," Miss Bains adds.